

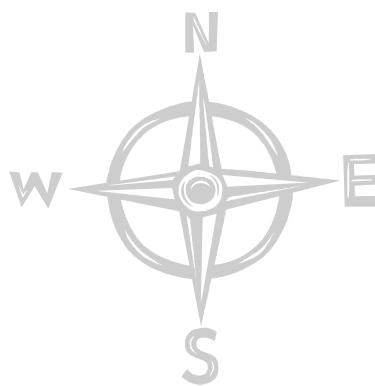


jazzCittern.com's

jazzCittern™ **ModeExplorer**

A Field Guide to ModeExploration

🌀 web edition 🌀



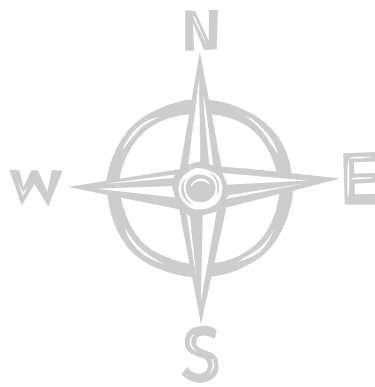
This document is the User's Manual distributed solely by *jazzCittern.com* with their ModeExplorer musical instruction software products, available at www.jazzcittern.com. This document is not to be sold or redistributed except through *jazzCittern.com*.

Author: C. Schmoller

© 2013 **jazzCittern.com** All rights reserved.

No part of the document may be reproduced, stored in a retrieval system, or transmitted by any means, electronic, mechanical, photocopying, recording, or otherwise, without written permission from JazzCittern.com.

Company and product names mentioned herein are the trademarks or registered trademarks of their respective owners. Names such as company names, trade names, service names, and product names appearing herein may be registered or unregistered trademarks or service marks, whether or not identified as such. All such names and all registered and unregistered trademarks, service marks, and logos are used for identification purposes only and are the property of their respective owners.



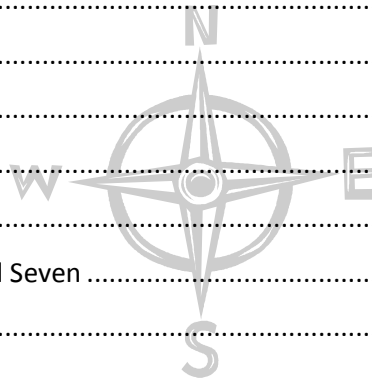
Itinerary

Thank you for choosing the <i>jazzCittern™</i> ModeExplorer Family!	10
So What Are These ‘Modes’, Anyway?	12
The <i>jazzCittern™</i> ModeExplorer is Our Guide.....	13
The Tour.....	14
Quick Start Tips -	15
Start the ModeExplorer	16
Playing Scales.....	17
ModeExploration of Scales (Modes)	17
Click on the neck to hear the note. Mouseover a finger position to see the name of the note.....	17
On Positions.....	17
Violin Positions.....	17
Other Fretboard Organization	18
FFcP.....	18
GSPE.....	19
Playing Chords	20
ModeExploration of Component Chords	20
Changing Scale Tonics	23
ModeExploration in Various Scale Tonics	23
The JazzCittern.com Expedition Outfitters.....	25
“Open” Chords, Two-Finger Chords, Three-Finger Chords, Anyone?.....	26
Modes in Improvisation	30
Navigating Improvisation.....	30
It’s All Intervals.....	30
Major and Minor Scales	31
Modes Work the Same Way	31
Chords.....	31

Chord Theory Crash Course	32
Scales and Their Component Chords	33
Selecting Scales from Chords in Context	35
Improvising on Dominant Seven Chords	35
Beast #1:	35
The Plot Thickens:	36
Beast #2:	36
There are other environments in which the Dominant Seventh chord can show itself. Let's try bagging another	36
Beast #3:	37
The Beasts in Real Life.....	37
The tonal center is C. Cma7 is the I chord	37
And then it's followed by an A7? What now?	38
Sounds excellent. We're onto something here.....	38
Beast #4:	38
In Summary	39
Building Cittern Chords	41
How to Construct Chords on the Mandolin: Who needs a chord encyclopedia when you know how to build your own?	41
Constructing jazz chords - Here's how:	41
It's Easy	41
Variations on the minor chord work the same way:	42
And you can do flat fives and sharp fives because the perfect fifth is right there handy:.....	42
And the 'nines' can be found on the fourth string:	42
Constructing Inversions - Here's how:.....	43
Mix and match - Build your own!	45
ScaleWatcher's FieldGuide: Modes of the Major Scale.....	47
Major Scale (Ionian Mode).....	47
Dorian Mode	47
Phrygian Mode.....	48
Lydian Mode	49
Mixolydian Mode	49

Minor Scale (Aeolian Mode)	50
Locrian Mode	50
Synthetic Modes	51
What are Synthetic Modes?	51
Melodic Minor Harmony	51
Phrygian #6	52
Overtone (Lydian Augmented)	53
Lydian Dominant	53
Fifth Mode	53
Locrian #2	54
Altered Scale	54
Pentatonic Scales	54
Symmetric Scales	56
What are Symmetric Scales?	56
Whole Tone Scale	56
The Diminished Scales	56
ChordWatcher's FieldGuide	57
Naming Rule 1	57
Naming Rule 2	57
Naming Rule 3	57
Naming Rule 4	57
Major	59
Major Sixth	59
Six Nine	59
Add Nine (AKA "Two Chord")	59
Major Seventh	59
Major Seven Add Thirteenth	59
Major Nine	59
Major Thirteenth	60
Seventh	60
Ninth	60
Thirteenth	60

Minor	60
Minor Sixth.....	60
Minor Six Nine.....	61
Minor Add Nine.....	61
Minor Seventh	61
Minor Seventh Add Eleven.....	61
Minor Seventh Add Thirteen.....	61
Minor Nine	61
Minor Eleven.....	61
Minor Thirteen.....	62
Minor Raised Seven	62
Minor Nine Raised Seven	62
Minor Seven Flat Five.....	62
Minor Nine Flat Five.....	62
Minor Eleven Flat Five.....	62
Diminished	62
Diminished Seventh	63
Diminished Seventh Add Raised Seven	63
Augmented	63
Suspended	63
Seven Suspended	63
Nine Suspended	63
Thirteen Suspended	63
Major Seven Flat Five.....	64
Major Seven Sharp Five.....	64
Major Seven Augmented Eleven	64
Major Nine Augmented Eleven	64
Major Thirteen Augmented Eleven	64
Seven Flat Five	64
Nine Flat Five	64
Seven Sharp Five	65
Nine Sharp Five	65

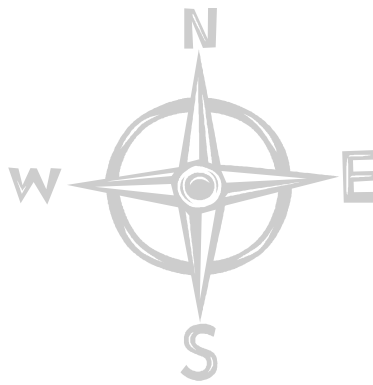


Seven Flat Nine	65
Seven Sharp Nine	65
Seven Flat Five Flat Nine	65
Seven Sharp Five Sharp Nine.....	65
Seven Sharp Five Flat Nine	65
Seven Augmented Eleven	65
Nine Augmented Eleven	66
Seven Flat Nine Augmented Eleven	66
Seven Sharp Nine Augmented Eleven	66
Thirteen Flat Five	66
Thirteen Flat Nine	66
Thirteen Augmented Eleven	66
Seven Suspended Flat Nine.....	66
Thirteen Suspended Flat Nine.....	66
Tech Notes	68
Some Technical Background on the ModeExplorers.....	68
Platform and Software Requirements.....	68
Thank you!	68
Other Citternalia and Support.....	68

Thank you for choosing the jazzCittern™ ModeExplorer Family!

JazzCittern™ ModeExplorer is a powerful tool for improvising cittern players, Bouzouki players, Octave Mandolin players, and New Standard Tuning (NST) guitar players, and mandolin players. Musicians already appreciate the endless advantages of fifths tuning; *jazzCittern™ ModeExplorer* makes mandolin-family tuning benefits available *in the rich voice range of the guitar*. It's a scale slide rule and a chord calculator, a handy composing tool, and a great way for the musician to organize scales and chords, and invent new ones. It's educational. It's fun. And the content is presented in a familiar 'explorer' design, navigated in an intuitive and easy-to-use "tree".

So prepare to embark on a Thrilling Expedition! The *jazzCittern™ ModeExplorer* is your guide across vast musical landscapes where you will enjoy exploring and discovering thousands of new ways to get from here to there, expanding your horizons to encompass the entire fretboard – Witnessing chords and scales as never before – *In their native habitats!*



The screenshot displays the jazzCittern ModeExplorer v1.01 software interface. On the left, a vertical list of scales and chords is shown, including 'Ascending Melodic Minor (Jazz Minor)' and 'Component Chords'. The central area features a large, detailed image of a Cittern instrument. On the right, several pop-up windows provide detailed information about the selected scale and chord. These windows include 'The Groveland Chord DNA Sequencer', 'The Groveland Chord Excavation', 'The Groveland Scalar Safari', 'The Groveland Chordwatcher's Field Guide', and 'The Groveland Scalewatcher's Field Guide'. The 'Field Guide' windows contain descriptive text, chord types, and musical notation. The bottom of the interface includes the 'Groveland Software Lab' logo and contact information.

You possess this very powerful tool that unlocks, illustrates, and demonstrates advanced music theory on the Cittern. Much more than a scale or chord dictionary (though it definitely shines in these categories), the ModeExplorer lets you witness chords and scales like never before - *In their native habitat!* You will learn the all important context that makes the chords and scales work together. The way we like to say it is: *"The Scale IS the Chord, and the Chord IS the Scale!"*

All those chords and scales are like pieces of a puzzle - And the best way we know to see and hear how the pieces all fit together is with the ModeExplorer. As you explore, you will discover that a set of

chords actually defines a scale or scales, and a scale defines a set of chords. You'll see that, given a set of chords, you can decide what to play along with those chords to make it sound right. And you'll see how it's all done on *jazzCittern™*. We will map it all out for you.

So What Are These ‘Modes’, Anyway?

What is a mode? Simply put, a mode is an inversion of a scale. Each inversion is another scale in its own right, with its own set of intervals.

Starting a scale at points in the scale other than its tonic gives you its modes. For the major scale there are seven modes, one starting on each note of the scale. The natural minor scale is the sixth mode of the major scale, for example, because it is the same notes of the major scale, only starting on the sixth degree.

One way to determine what can be played is to analyze what modes (scales) contain the chords in that set and improvise using those scales.

The Ancient Greeks actually used some kind of modal structure in their tunes, realizing that each sequence of intervals evoked a unique emotional response. In medieval times you hear a lot of this modal stuff going on. BUT - The historical use is quite different from modern use espoused by the *jazzCitternist* involved in ModeExploration. Today modes are a part of a popular technique for determining what scales to improvise against a set of chords, and what chords can be derived from scales. This technique of improvisation is most often associated with Jazz, although it is certainly not unique to Jazz. The study of these relationships is called “Chord/Scale Theory”.

How exactly are modes useful? When an improvising musician has a set of chords on a sheet of music, the player needs to know what notes can be played with those chords so the solo sounds right. One way to determine what can be played is to analyze what modes (scales) contain the chords in that set and improvise using those scales. For simple tunes, the diatonic modes of the major scale may be adequate: The major and minor scales for traditional songs, Dorian and Mixolydian modes for Blues, Rock, Gospel and some Jazz, and perhaps Phrygian for a Spanish flavor. For more complex harmonies, the synthetic and symmetric modes may be required.

Modes are also useful tools for composing as well. Some composers have worked out entire systems based on the characteristics of modes, for example, George Russell’s Lydian Chromatic Concept (<http://www.georgerussell.com/>).

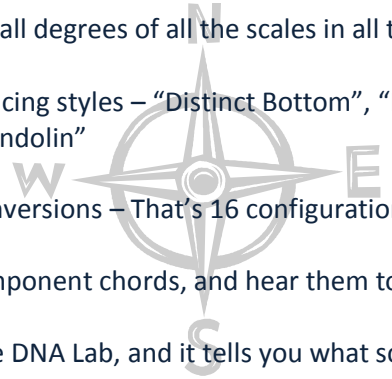
ModeExploration:

The *jazzCittern™ ModeExplorer* is Our Guide

Count on the weathered sherpa of numerous fifths-tuned expeditions is here to guide you safely from summit to peak. And back again.

Like all ModeExplorers, the *jazzCittern™* ModeExplorer displays all the modes of the standard major scale, presenting the fingerings graphically on the neck of the *jazzCittern™*, in every key and every position on the neck, *plays those modes for you*, provides a dozens of useful “synthetic scales” and “symmetric scales”, figures out all the chords that can be created for all those scales all over the neck of the *jazzCittern™* in all keys and plays them for you.

The ModeExplorer provides the right gear for the expedition. Look for these key features in this Field Guide:

- 
- ☞ All the chords derived from all degrees of all the scales in all the keys are demonstrated
 - ☞ Each chord is shown in 4 voicing styles – “Distinct Bottom”, “Mandocello”, “Mandocello Extended”, and “Octave Mandolin”
 - ☞ Each voicing is shown in 4 inversions – That’s 16 configurations per chord
 - ☞ See the scales and their component chords, and hear them too
 - ☞ Enter a chord series into the DNA Lab, and it tells you what scales you might use for improvising, for most every occasion
 - ☞ The ModeExplorer Web Service provides additional scales and chords when an Internet connection is available (No connection required)
 - ☞ Real cittern sounds to demonstrate chords and scales - Not some fake midi soundcard approximation
 - ☞ Choose from **eight "violin positions"** (w/half position) for visualizing scales in manageable chunks, or all scale notes at once
 - ☞ The *jazzCittern™* ModeExplorer has **FFcP support!** All scales can be broken down into JazzMando.com's 1st, 2nd, 3rd and 4th FFcP... All diatonic modes of the major scale and synthetic scales, like harmonic minor, melodic minor, the Altered scale, Locrian#2... For all tonics

ModeExploration is NOT a destination – It’s a *journey*. Your musical journey begins right here. Let the expedition begin...

The Tour

What's ModeExploration like? It's like being on a Scalar Safari. It's like participating in a Chord Excavation, hunting for musical treasure. It's like the microscope in the lab discovering Chord DNA. The tools of the expedition are your handy ChordWatcher's and ScaleWatcher's FieldGuides. It's fun!

When you start the jazzCittern™ ModeExplorer, it contacts the ModeExplorer web service to receive the latest collection of scales.

There are three species of modes supplied in the menu: The Major Scale Modes, the Synthetic Modes, and the Symmetrical Scales. Under each of these is either a list of modes for that group, or a family of modes, which in turn expands into a list of related modes.

Under each Mode are two nodes containing all the information you need to know about that mode: The "Scale Intervals" node and the "Component Chords" node.

- The **Scale Intervals** show the unique configuration of whole steps (w), half steps (h), and steps-and-a-half (wh) characterizing the scale. Click on the Scale Intervals node, and Voila! The scale is drawn on the Cittern neck. Click on the highlighted positions on the next to play the notes of the scale.
- Click on the **Component Chords** node to expand it to chart out the vast harmonic landscapes locked in the Scale Intervals. This includes all major chord types and fingerings of those chords for each degree of the scale. Drilling down into the resulting tree, you can click on the resulting chords and witness the enormous variety living in the scale.

What's up with this "tree"? The 'tree metaphor' depicts best how scales and chords work. To 'drill-down' into ...

- the scale,
- its chords,
- the chord,
- its inversions,
- possible fingerings,
- and the notes of the fingering

ModeExplorers group scales into families because some share a common characteristic:

- Diatonic Modes are scales built from the Major scale,
- Synthetic Modes are scales that use interval sets other than that of the Major scale.
- Symmetric Modes are synthetic scales that are comprised of a single symmetrical, repeated pattern.
- Within each of these categories there are sets of intervals that exhibit the characteristics of these families. These sets of intervals define scales.
- Each note of a scale represents a tonic of a chord, or many chords, that can be built on that note using only the notes within the scale. Hidden in each scale is a finite set of chords unique to the particular intervals that define that scale.

- ☞ Within each chord are hidden multiple 'inversions', or ways of playing the chord starting on various notes of the chord.
- ☞ Within each inversion there are multiple ways of fingering the inverted chord.

And in each fingering of each inversion of a chord, there are the notes of the scale, each performing their function in that chord. So you can see how to 'drill-down' into the scale, the chords, the chord, the inversion, the fingering, and the note is the best way to explore.

Quick Start Tips -

Here are some tips to help you on your ModeExplorations:

- ☞ Click on the "+" signs to drill-down into the chords for the scale.
- ☞ Click on "Scale Intervals" to reveal the scale in violin positions, JazzMando.com's FFcP, or *all* positions of the displayed scale.
- ☞ Click on "Component Chords" to get all the chords for that degree of the scale.
- ☞ Mouse-over the dots on the neck for note names in scales.
- ☞ Click on the dots to play the note.
- ☞ When a chord shape is displayed, mouse-over the dots to get the *role* of the notes in that chord.

Start the ModeExplorer

The ModeExplorer is simple to start and simple to use.

- ④ Login using your username and password. Read the License Agreement and click Login.
- ④ The ModeExplorer will begin to download what it needs for the journey. Your browser will likely inform you that the ModeExplorer would like to download some files. These are sound files, so tell your browser it's okay to download these files.
- ④ This may take a minute or two on first use. "Please wait while we prepare you for your next adventure..."
- ④ You are ready to start exploring!
- ④ Most everything can be accessed with a click of the mouse, or by hovering your mouse cursor over an item. However, should you need help exploring, instructions about how to use the ModeExplorer can be found in the following chapters, plus extensive information on modes, chords, and improvisation.

If there are difficulties running the ModeExplorer, be sure that

1. ...Your browser truly supports HTML5. At this writing, these browsers are known to work well for the ModeExplorer (this may change from release to release, and is subject to the machine's operating system):

Chrome 15

Firefox 7

Safari 5
2. ...The machine is up to the task. See the system requirements posted on the web. Machines typically need 2 GB of memory and a couple GHz CPU to comfortably run the jazzCittern™ ModeExplorer.

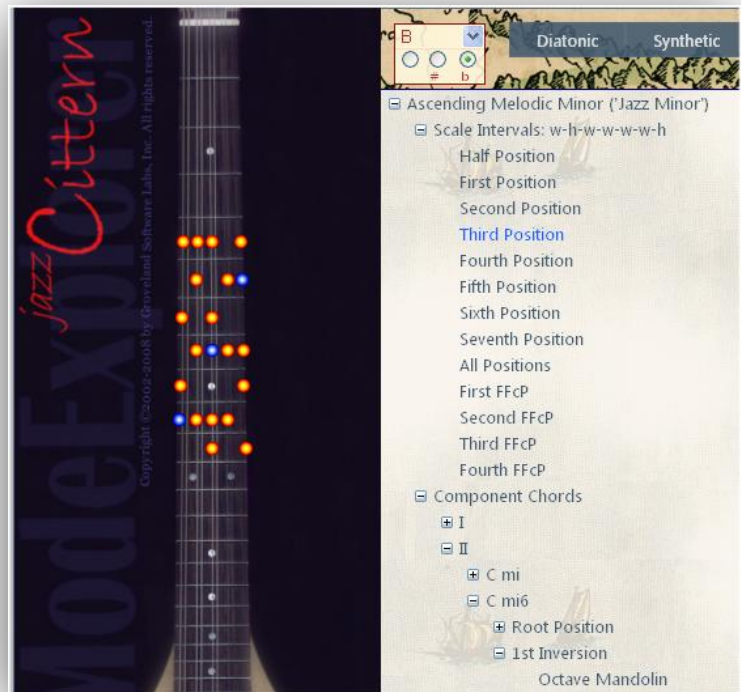
Playing Scales

ModeExploration of Scales (Modes)

Playing scales using the *jazzCittern™* ModeExplorer is as simple as navigating the ModeExplorer Tree. When the ModeExplorer starts, the Tree is populated with items – We call them "nodes."

Note the "+" on each node. If you click on this the node will expand to yet more mode nodes. Any node with a "-" has already been expanded.

Clicking on the node expands it to reveal the intervals that define the scale: w-h-w-w-w-h in the illustration (That is, whole step, half step, whole step, whole step, whole step, whole step, half step.)



Click on a 'position' or an FcP node, and all the notes of that position are plotted on the Cittern neck.

Click on the neck to hear the note. Mouseover a finger position to see the name of the note.

On Positions

Musicians playing stringed instruments have long benefited from getting familiar with the standard "positions" on their instruments. Doing so divides the fretboard, with all those notes distributed across all those strings, into manageable, bite-sized chunks. It provides the player points of reference when navigating the expanse of frets and strings, and provides maps of patterns and recognizable landmarks.

Violin Positions

Violin positions have been around for ages, are well documented, and are historically pretty universally recommended for getting the lay of the land on fifths-tunes instruments. There are seven positions, plus a "half-position". These kinds of positions are highlighted in *jazzCittern™* ModeExplorer for all keys,

modes and scales, as they apply to the Cittern (and other fifths-tuned instruments, like cello, violin, mandolin).

- 🌀 Half position goes from open C to the F# on the C string (to the 6th fret). This provides what might be described as typical 'open position' playing.
- 🌀 First position goes from open C to the G# on the C course (to the 8th fret). This covers a lot of territory, and is designed for full 'closed position' playing plus leveraging open strings.
- 🌀 Second position covers from the 3rd fret through the 9th fret, starting on D# and extending to A on the C course.
- 🌀 Third position covers from the 5rd fret through the 11th fret, starting on F and extending to B on the C course.
- 🌀 Fourth position covers from the 7th fret through the 13th fret, starting on G and extending to C# on the C course.
- 🌀 Fifth position covers from the 8th fret and extends through the 14th fret, starting on G# and extending to D on the C course.
- 🌀 Sixth position covers from the 10th fret and extends through the 16th fret, starting on A# and extending to E on the C course.
- 🌀 Seventh position covers from the 12th fret and extends through the 18th fret, starting on C and extending to F# on the C course. This is identical to the Half position, an octave higher on the neck.

The positions are really derived from the key of C as it occurs on the neck, no sharps or flats. Sharps and flats are accomplished within each position by altering the placement of appropriate finger up or down a half step (fret). This is equivalent to playing a 'black' key on the piano. The positions are designed to accommodate chromatic alterations to the C major scale presented by other keys and the various scales.

The position approach to visualizing the fretboard is very tightly bound to the C major scale and making alterations to it. It is not the only way to organize the fretboard.

Other Fretboard Organization

FFcP

There's great benefit in thinking more in terms of movable intervallic patterns than positions. The 'positions' are really sections of one big pattern of intervals that actually slides up and down the neck as key signatures change. Breaking these intervallic patterns down into reusable, movable, bite size chunks gives you something that looks more like **FFcP**, the *Four Fingered Closed Positions*. (see JazzMando.com, Ted Eschliman: "Getting into Jazz Mandolin") This more "modular" approach serves improvisation well as the patterns can be learned once and the relocated all across the fretboard as the key and harmony dictates, regardless of position.

The ModeExplorer presents the fretboard from an FFcP point-of-view as well.

GSPE

Another excellent approach to mapping out the fretboard of fifths-tunes instruments is **JazzCittern.com's Symmetrical Perceptual Economy**. (jcdcSPE) This approach is designed to leverage the symmetrical nature of fifths-tuning to simplify navigation.

The way it works: The ascending and descending intervals of the Dorian Mode are w-h-w-w-w-h-w. No other diatonic mode of the major scale has this characteristic. You can easily see this symmetry on a keyboard: Observe the mirror image of black and white keys on a piano keyboard with D at the center. This mirror image is very apparent on fifths-tuned instruments as well. Dorian Mode is certainly not uncommon in modern music, often used for improvising in jazz, rock, and many other genres. Therefore, The Dorian Mode becomes the center of the musical universe so far as GSPE is concerned.

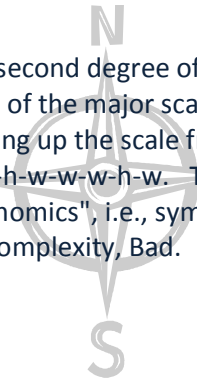
When plotted out on the neck of a 5-course fifths-tunes instrument like the *jazzCittern™* or an NST Guitar, the navigational efficiencies become dramatically apparent.

There's great benefit in thinking more in terms of movable intervallic patterns than positions.

Visualizing Patterns: Perceptual Economy

The symmetry is actually discovered on the second degree of the major scale (shown in red above) which is the tonic of the Dorian Mode (the ii of the major scale). ModeExplorers that use GSPE call this *the pivot*. This yields the Dorian intervals going up the scale from the pivot, w-h-w-w-w-h-w, and the same pattern going down from the pivot, w-h-w-w-w-h-w. The predictability eliminates a lot of work. That's why we refer to it as "perceptual economics", i.e., symmetry=simplicity, lack of symmetry=complexity. Symmetry, Good. Complexity, Bad.

The marker in red designates the pivot:



```

=== | === | === | === | === | === | === | === | === | === | === | === | | C
=== | === | === | === | =0= | === | =0= | === | =0= | =0= | === | =0= | | G
=== | === | === | =0= | =0= | === | =0= | === | =0= | =0= | === | === | | D
=== | =0= | === | =0= | =0= | === | =0= | === | =0= | === | === | === | | A
=== | === | === | === | === | === | === | === | === | === | === | === | | E
    
```

(← Body -- Nut →)

The symmetries are easily recognized on citterns with the extra course than the four-course instruments - It's easier to see how these things play out on the five courses. Certainly this phenomenon does not exist in any other tuning.

The entire GSPE travels around the fretboard as required as modes and keys change. GSPEs overlap covering the entire fretboard, providing a single unified view of the fretboard.

Playing Chords

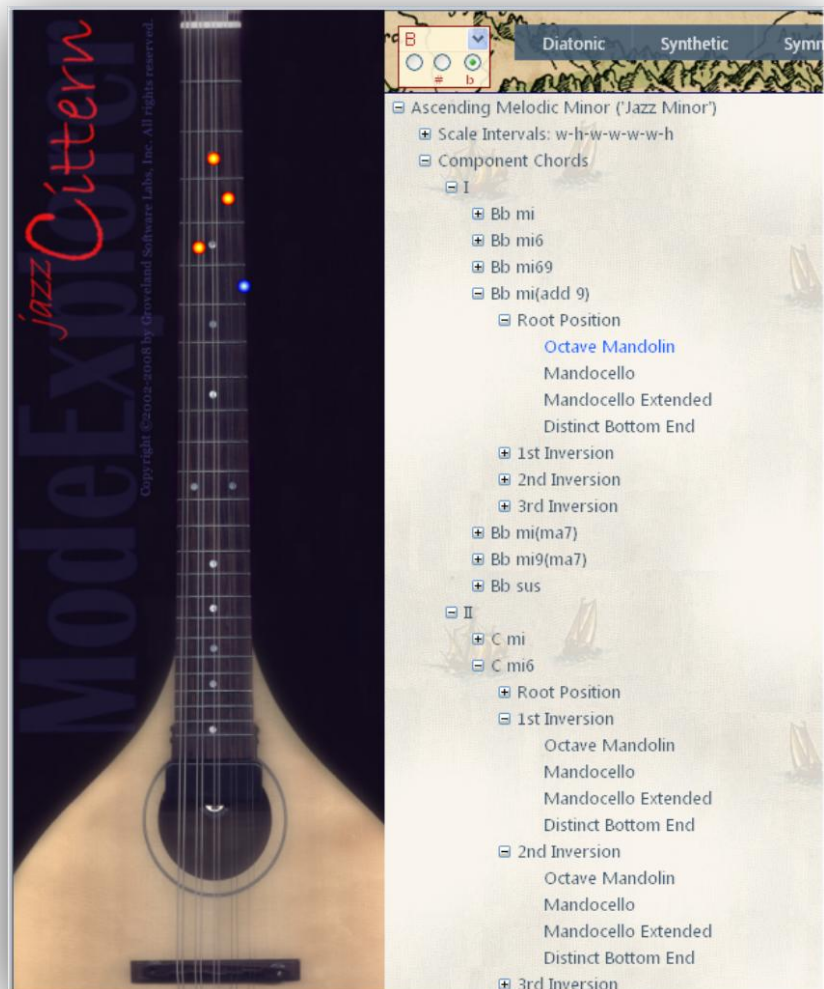
ModeExploration of Component Chords

Each scale implies certain chord types that can be built on each degree of the scale. Playing the possible chords for these scales using the *jazzCittern™* ModeExplorer is as simple as navigating the ModeExplorer Tree.

When you select the Diatonic Modes, Symmetric Modes, or Synthetic Modes from the menu, you get a tree containing scale information.

Clicking on the "Component Chords" node you expand this node. The ModeExplorer will figure out the chords for each degree of this scale. Each degree of the scale is designated by a Roman numeral, the I being the chord built on the tonic, the II being the chord built off the second note, etc. These are referred to as 'the first degree' of the scale, 'the second degree' of the scale, and so on.

Clicking on the "+" or double-clicking on a Roman numeral reveals a fantastic sampling of the component chords built from this particular degree of the scale. The ModeExplorer knows about 57 different chord types. This particular example demonstrates the chords built from the first degree of the Bb Melodic Minor scale.



The Inversions

There are 4 inversions of each chord (root, 1st, 2nd, 3rd) and 4 different voicings of each inversion. So if you “drill down” you will find **16 different ways** to play each chord. (Clicking on the chord name will play and display the first position fingering of the chord by default on the Cittern neck.)

The example demonstrates the chords built from the first degree (Bb) of the Bb Melodic Minor scale, and a Bbmi(add 9) chord is selected, in Root position, and the voicing is the “Octave Mandolin” voicing.

The Voicings

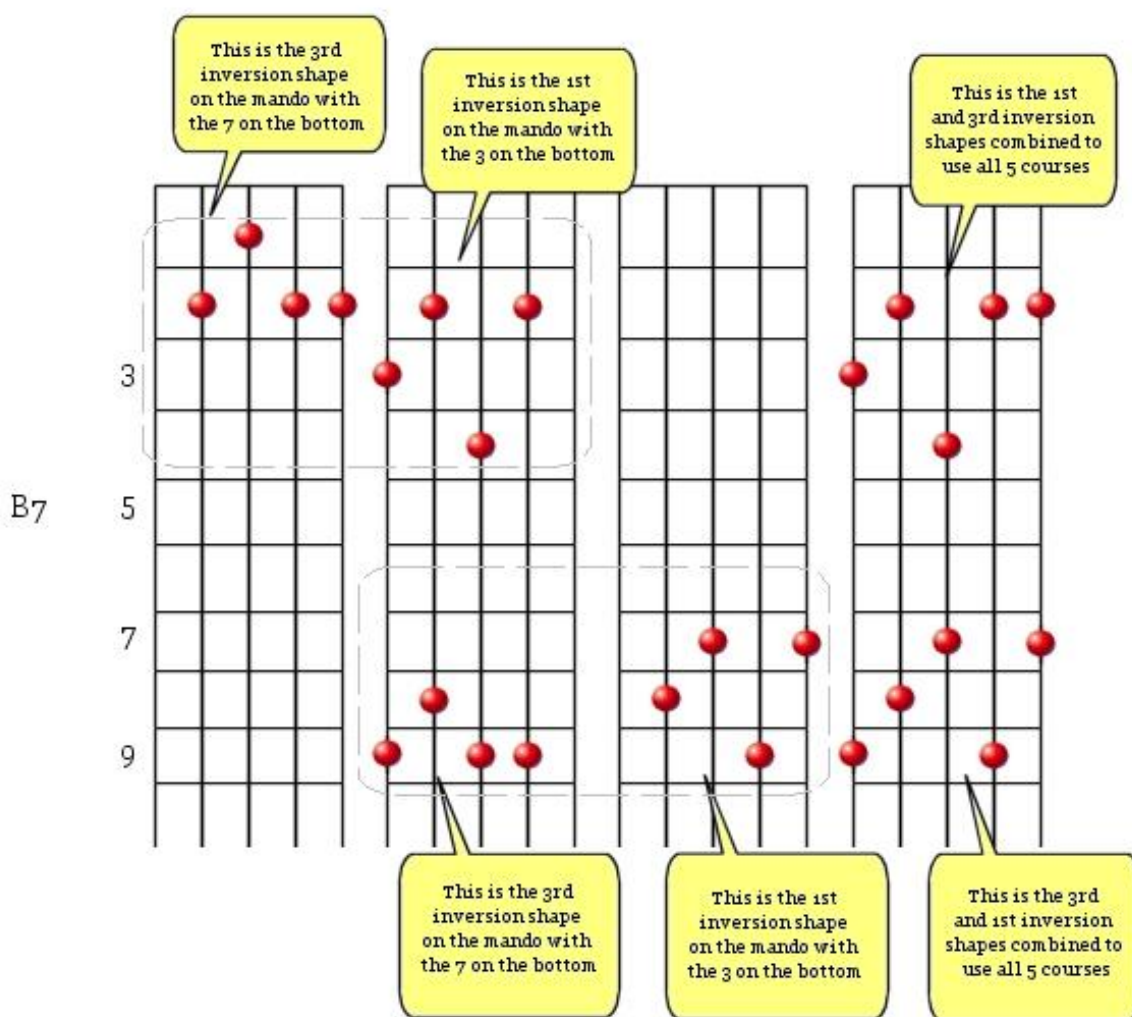
The voicings for each inversion are “Distinct Bottom End”, “Mandocello”, “Mandocello Extended”, and “Octave Mandolin”. The Cittern covers a lot of territory – On the lower courses it voices the same notes as a mandocello, that is, CGDA. The upper four courses are voiced like an Octave Mandolin or Bouzouki, that is, GDAE. That allows the Cittern expanded voicing options.

- ④ “Distinct Bottom End” separates the lower course from three higher voices by not using the G string. This gives a chord of a good, wide range.
- ④ “Mandocello” uses the lower four courses as you would with a mandocello. This effectively makes the Cittern into a mandocello. The shapes used are selected and adapted from the JazzCittern.com’s Mando ModeExplorer.
- ④ “Octave Mandolin” uses the upper four courses as you would an Octave Mandolin (a.k.a. OM). This effectively makes the Cittern into an Octave Mandolin or Bouzouki. The shapes are selected and adapted from the JazzCittern.com’s Mando ModeExplorer.
- ④ “Mandocello Extended” leverages the fifths-tuning advantage *jazzCittern™* ModeExplorers call “adjacent shapes”. For example, if you play a root position mandocello shape somewhere on the neck, the chord’s second inversion can be found one course over. The same is true of the first inversion and the third, the second inversion and the root position, and the third inversion and the second. Move one course over from the one, play the other, and you have the same chord.

JazzCittern.com Adjacent Shapes

How is “Mandocello Extended” accomplished? The fifths symmetry makes the most sense for chord building if you don’t need to rely on open string tunings. There are tons of efficiencies that come from extending the standard mando tuning down another fifth.

For example, you can find typical mando 4-string chord shapes right next to each other on the neck, and *combine them out to 5-string if desired*. Here we’re doing it with the first and third inversions of the 4465 shape (B7) to get the 3 and 7 on the bottom, but you can find these neighboring shape relationships in all cases, and it’s important to learn them all.



Copyright ©2002-2007 by Groveland Software Labs, Inc.
All rights reserved.

Changing Scale Tonics



ModeExploration in Various Scale Tonics

The Tonic is somewhat synonymous with what we casually call a “key”, but it is not a true “key signature”. Rather, it describes a tonal center, or a home base. You will find that even though seven modes of the major scale all share the same “key signature”, each has a different tonal center! Furthermore, in the World of Modes, scales cannot always be represented with a simple key signature of sharps and flats; the Synthetic and Symmetric Modes often contain double-flats and double-sharps. In some cases it might be a challenge to classify a scale as major, minor, diminished or augmented!

Therefore, the ModeExplorer always emphasizes tonic, that is, the tonal center of the scale.

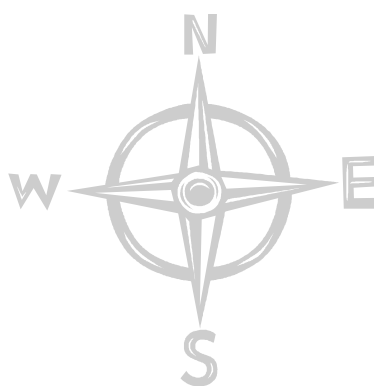
To change the ModeExplorer's Tonic, select from the Tonic dropdown list, and click the natural/sharp/flat radio buttons for the chromatics.

When you select a tonic from the dropdown list, the ModeExplorer Tree collapses itself and all the information in the scales is refreshed. This is because all the names of all the degrees of the scales need to be recalculated for the new tonal center.

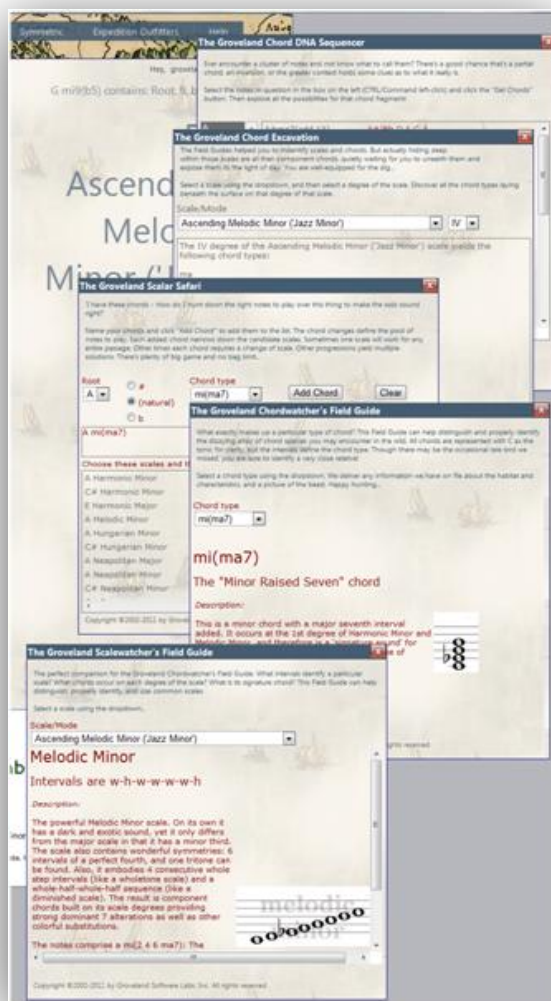
Not all tonics create real key signatures. For example, there is no legitimate scale named Cb minor, but there is a Cb major scale. If you select Cb as a Tonic, and then examine the Ionian (Major) scale, it will appear as a Cb Major scale. But then examine the Cb Aeolian (Minor) scale: Its tonic is Cb, but we get a Db, Ebb, Fb, Gb, Abb and Bbb in the scale! We leave this as it is for informational purposes, but there is no real key signature for it, and it would better be renamed as a B minor scale.

The following chart defines legitimate key signatures for Major and Minor.

Major (Ionian)																
<-----no. of flats									no. of sharps----->							
7	6	5	4	3	2	1	0	1	2	3	4	5	6	7		
Cb	Gb	Db	Ab	Eb	Bb	F	C	G	D	A	E	B	F#	C#	G#	D#
			7	6	5	4	3	2	1	0	1	2	3	4	5	6
																7
Minor (Aeolian)																



The JazzCittern.com Expedition Outfitters



The jazzCittern™ ModeExplorer provides you with the Expedition Outfitters – A set of tools that will help you chart your course, navigating through a veritable sea of harmonic and scalar possibilities. From a few notes you can identify the chords to which they might belong. From a few chords you can identify what scales would sound best in that context.

And the JazzCittern.com Field Guides will tell you exactly what each chord and scale looks like in its natural habitat.

Let's take a look at what these tools can help you discover about the World of Modes...

The JazzCittern.com DNA Sequencer

Ever encounter a cluster of notes and not know what to call them? There's a good chance that's a partial chord, an inversion, or the greater context holds some clues as to what it really is.

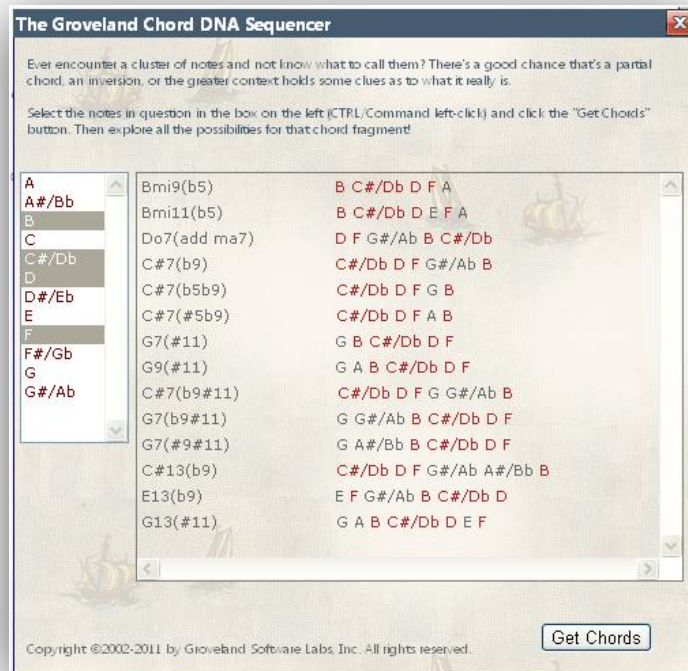
Select the notes in question in the box on the left (CTRL/Command left-click) and click the "Get Chords" button. Then explore all the possibilities for that chord fragment!

“Open” Chords, Two-Finger Chords, Three-Finger Chords, Anyone?

On Cittern, it's often desirable to keep some open strings ringing for that open-string sound. The JazzCittern.com Chord DNA Sequencer can help find all the possibilities, and give you their names. For example, the open strings on a Cittern are C, G, D, A and E. Feeding combinations of these notes to the Chord DNA Sequencer can list a host of possibilities.

In this example, we said, “What chords contain the open D, A, and E string?” That's like saying, what chords will I get if I leave all the string open and only change the notes on the C and G strings? There are tons. (Of course, with the bigger chords, some notes will be omitted because you can only play five notes at a time.)

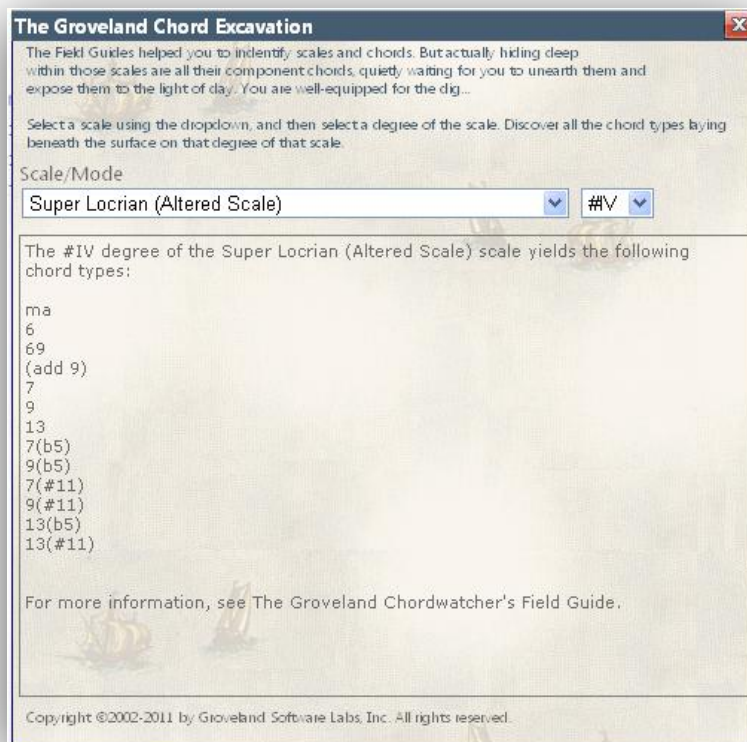
Try it with two or one open string. The open-chord possibilities are endless!



The JazzCittern.com Chord Excavation

As you will see later, the Field Guides will help you to identify scales and chords. But actually hiding deep within those scales are all their component chords, quietly waiting for you to unearth them and expose them to the light of day. You are well-equipped for the dig...

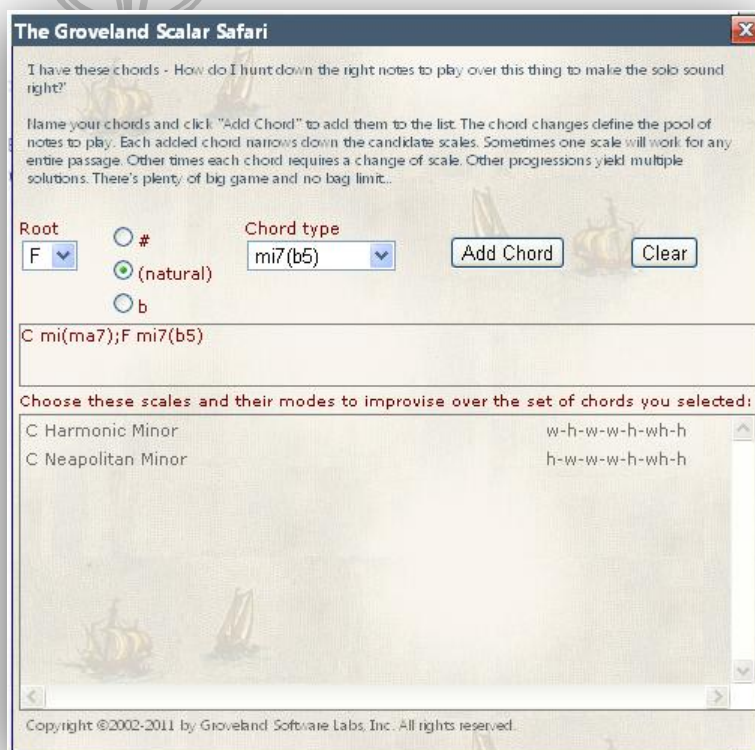
Select a scale using the dropdown, and then select a degree of the scale. Discover all the chord types laying beneath the surface on that degree of that scale.



The JazzCittern.com Scalar Safari

"I have these chords - How do I hunt down the right notes to play over this thing to make the solo sound right?"

Name your chords and click "Add Chord" to add them to the list. The chord changes define the pool of notes to play. Each added chord narrows down the candidate scales. Sometimes one scale will work for any entire passage. Other times each chord requires a change of scale. Other progressions yield multiple

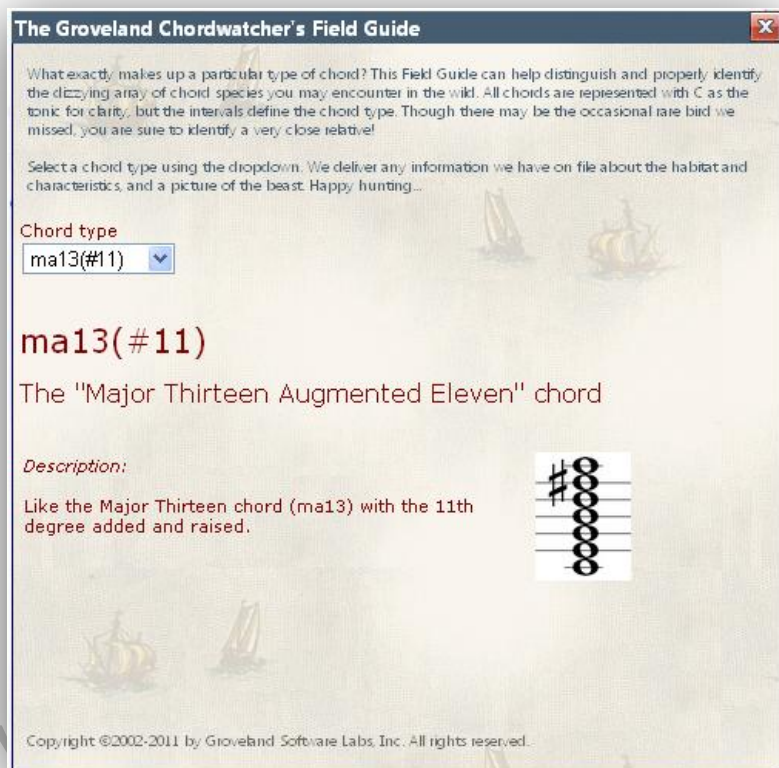


solutions. There's plenty of big game and no bag limit...

The JazzCittern.com Chordwatcher's Field Guide

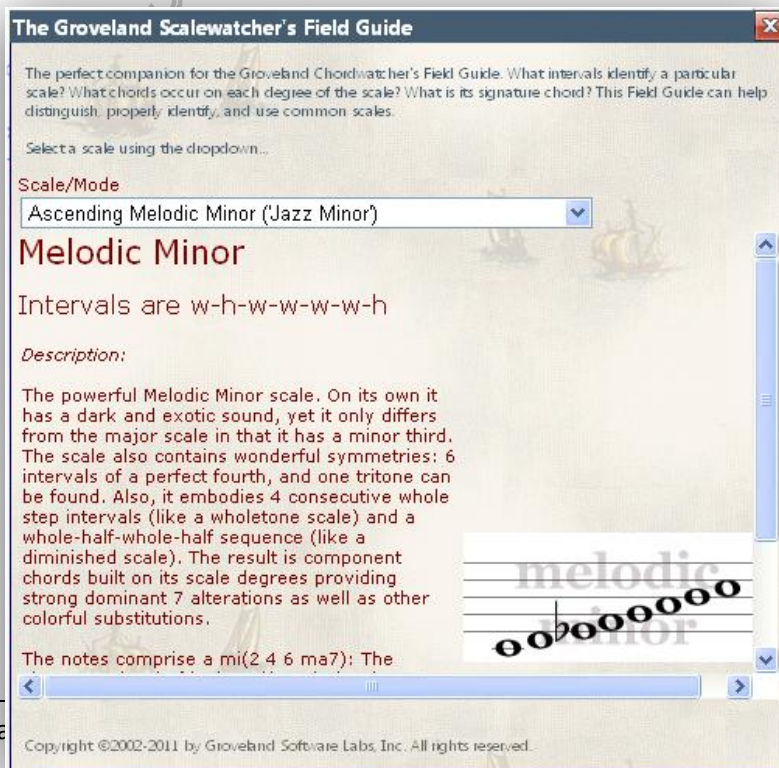
What *exactly* makes up a particular type of chord? This Field Guide can help distinguish and properly identify the dizzying array of chord species you may encounter in the wild. All chords are represented with C as the tonic for clarity, but the intervals define the chord type. Though there may be the occasional rare bird we missed, you are sure to identify a very close relative!

Select a chord type using the dropdown. We deliver any information we have on file about the habitat and characteristics, and a picture of the beast. Happy hunting...

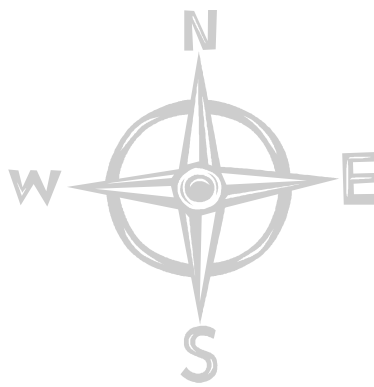


The JazzCittern.com Scalewatcher's Field Guide

The perfect companion for the JazzCittern.com Chordwatcher's Field Guide. What intervals identify a particular scale? What chords occur on each degree of the scale? What is its signature chord? This Field Guide can help distinguish, properly identify, and use common scales.



Select a scale using the dropdown.



Modes in Improvisation

Navigating Improvisation

Improvisation in modern western music is based on chord progressions, and a chord progression is a sequence of chords, usually harmonizing a melody. Often the chords in a tune last between a half a measure to a couple measures. The improviser often works off a “chart” which has the chords of a tune written above the staves of the sheet music, indicating the harmony to be used for that part of the melody.

The improviser, recognizing the scales possible in a given set of chords, now possesses the ‘rules’ by which to play the improvisation. The original melody was just one implementation of those rules.

The scales implied by the chords on the chart are most important in improvising, even more important than the chords themselves, or the melody. The scales implied by the chords represent all the possible melodies latent in the chord progression. The improviser, recognizing the scales possible in a given set of chords, now possesses the ‘rules’ by which to play the improvisation. The original melody was just one implementation of those rules.

It's All Intervals

The basics: In our traditional Western music there are 12 tones, called the Chromatic Scale: C, C#/Db, D, D#/Eb, E, F, F#/Gb, G, G#/Ab, A, A#/Bb, and B. This sequence repeats, each repetition being an octave higher than the preceding.

Each step in the Chromatic Scale is called a half step, so we see in Western music we have a possible 12 half steps in an octave. Most scales we use have only a subset of these 12 tones, usually 7, and the intervals between each of these ranges anywhere from one half step to four half steps. We call an interval between two notes in a scale *a half step*, *whole step* (when it's two halves), or a *step-and-a-half* (for three half steps). Of course on standard Cittern each fret represents a half step.

The half-step interval is also expressed in terms of “minor second” and a whole step is a “major second.” Three half steps comprise a “minor third,” four half steps a Major third (that is two whole steps), and so on:

⊕ ½ step	(1 semitone)	minor second
⊕ 1 step	(2 semitones)	major second
⊕ 1 ½ steps	(3 semitones)	minor third
⊕ 2 steps	(4 semitones)	major third
⊕ 2 ½ steps	(5 semitones)	perfect fourth
⊕ 3 steps	(6 semitones)	tritone (sometimes ‘augmented fourth’ or diminished fifth)
⊕ 3 ½ steps	(7 semitones)	perfect fifth
⊕ 4 steps	(8 semitones)	minor sixth
⊕ 4 ½ steps	(9 semitones)	major sixth
⊕ 5 steps	(10 semitones)	minor seventh
⊕ 5 ½ steps	(11 semitones)	major seventh

If any major, minor, or perfect interval is **expanded** by a half step by changing an accidental (the flat or sharp indication on the note) the interval is called augmented. If it is reduced by a half step by changing an accidental, the interval is called diminished.

Major and Minor Scales

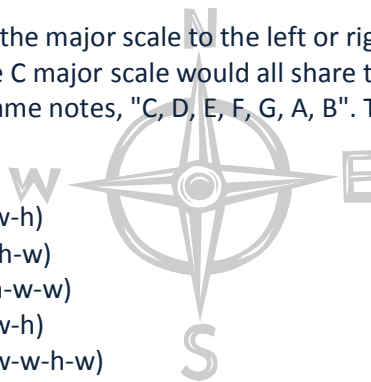
The most basic scale for discussion might be the C major scale, which is not encumbered by accidentals in the key signature and can be demonstrated as all white keys on the piano. The notes are "C, D, E, F, G, A, B". However, scales are not characterized by the particular notes in the scale, rather they are characterized by the intervals between the notes. A major scale has the following intervals: w-w-h-w-w-w-h, where w is a whole step and h is a half step.

By the same token, a minor scale is characterized by w-h-w-w-h-w-w. Using C major as a reference point, you'll notice that the intervals of the C major scale shifted to the right by two give us the minor scale intervals. This would mean that all the white keys on the piano starting on A give us the minor scale. That also means that A minor is the "relative minor" to C major.

Modes Work the Same Way

Similarly, by shifting the intervals of the major scale to the left or right we get the seven diatonic modes of the major scale. The modes of the C major scale would all share the same key signature (no sharps or flats) and they would all share the same notes, "C, D, E, F, G, A, B". They all just start on different degrees of the scale:

- ② C – Ionian (w-w-h-w-w-w-h)
- ② D – Dorian (w-h-w-w-w-h-w)
- ② E – Phrygian (h-w-w-w-h-w-w)
- ② F – Lydian (w-w-w-h-w-w-h)
- ② G – Mixolydian (w-w-h-w-w-h-w)
- ② A – Aeolian (w-h-w-w-h-w-w)
- ② B – Locrian (h-w-w-h-w-w-w)



Of course you can perform this exercise in any key signature. For example, a scale starting on D and having a set of intervals w-h-w-w-w-h-w is called "D Dorian." But a scale starting on, say, A# with the same w-h-w-w-w-h-w configuration of intervals is called "A# Dorian." It's all about intervals, not notes or black and white keys.

Chords

Maybe the most simple way to put it is, a chord is a set of notes played at the same time. A particular type of chord forms a unique harmonic relationship amongst its component notes.

Two notes sounded together can produce a "harmony", but that's not a chord. Technically the basic chord is the triad. It's composed of three notes, each an interval of a third apart (a minor third is 1 ½ steps, a major third is 2 steps). A major triad is constructed from three notes, an interval of a major third between the first and second note and an interval of a minor third between the second and third notes.

A minor triad has a minor third at the bottom and a major third at the top. A diminished triad contains two minor third intervals, and an augmented triad contains two major third intervals.

This we need to know, because we can actually extend the basic triad by adding more thirds above the triad. That's how we get the chords beyond the basic major, minor, diminished and augmented triads. A Major Seventh chord would be constructed from the major third/minor third we saw above to give us a major triad, only we add an additional major third on the top, creating the interval of a "major seventh" between the lowest note (root) and the highest. Hence the name "major seventh chord". We can actually continue to stack more thirds until we hit the interval of the 13th and we begin to see redundancies.

In fact, stacking thirds to the largest chord possible eventually uses every note of the scale - And therefore, fellow ModeExplorers say, "The Scale IS the Chord and the Chord IS the Scale."

In fact, stacking thirds to the largest chord possible eventually uses every note of the scale - And therefore, fellow ModeExplorers say, "The Scale **IS** the Chord and the Chord **IS** the Scale."

Chord Theory Crash Course

Basically, here's how the chord-building process works. You start with a scale, any scale, and apply these steps:

Step 1: A scale is made of intervals. For example, the major scale is defined by the intervals w-w-h-w-w-w-h.

Step 2: Starting on any note, those intervals (w-w-h-w-w-w-h) will land you on notes. Those notes when played will yield a major scale. If you start on C, those notes will be CDEFGAB (and C again).

Step 3: Chords of a scale are found by picking a note from the scale, skipping a note, then picking a note, and skipping a note, picking a note, etc.

Step 4: Starting on C, this pick/skip would yield CEG. That's a C major chord. Starting on D it should be DFA, or a D minor chord. Starting on E, EGB, or an E minor chord. Starting on F - Guess what? - FAC, an F major chord. Starting on G - Hey! - GBD, a G major chord! Starting on A, ACE, an A minor chord. Starting on B, BDF, or a B diminished chord.

Step 5: The basic chords (triads) of the C major scale are

- ① I C major
- ② II D minor
- ③ III E minor
- ④ IV F major
- ⑤ V G major
- ⑥ VI A minor
- ⑦ VII B diminished

Step 6: You just saw this in C major (all white keys on the piano, no sharps, no flats) but you can do this starting on any note. (Like G, but the pattern of wwhwww will land you on an F# instead of F.) You will always yield major, minor, minor, major, minor, diminished chords from the notes of the the major scale.

Step 7: You don't have to stop at 3 notes (triads). You can go up to 7 pick/skips () before the pattern starts repeating. That's where you get those big chords, like G13. There are sometimes special rules, but we won't get into that.

Step 8: The major scale is only one set of intervals. There are other sets of intervals which yield other component chords – The itinerary of future ModeExplorations!

Once you know the notes of the chord, you can play them anywhere in any combination that you can grab on your instrument. Some sound better than others, but they're all legal, and they all are ways of playing that chord. GBD is a G chord and so is BDG and so is DBG and GDB. And GBGGDDBGDDGDBB (impossible to play, of course). These are all "voicings" and "inversions" of the G chord.

So we see that, given any scale, we can break it up into what we might call its "component chords". By the same token, given a set of chords, we can tell what scale (or scales) they belong to.

It's very important to remember that what makes a scale unique is its intervals. Each scale yields its own unique set of chord types. Other scales with other sets of intervals produce other kinds of chords. It's up the improviser to identify the scales from the chords given.

Scales and Their Component Chords

The Chromatic Scale is the set of 12 tones in traditional Western music. All other scales are subsets of those 12 tones, usually 7 out of the 12, and the characteristic intervals between the notes are what make a particular scale.

The intervals in a scale define what chords can be constructed from in that scale using the "stacking thirds" process described above. **Therefore, given a set of chords, it should be clear what scales could produce that set of chords.** And that's the set of scale choices the improviser has to work with for that set of chords.

For example, if the major scale consists of intervals w-w-h-w-w-h, and a chord consists of stacked thirds, and we stacked 3 thirds, we would find the following seventh chords can be built on each degree of the scale:

- Ⓐ I Major seventh
- Ⓑ II Minor seventh
- Ⓒ III Minor seventh
- Ⓓ IV Major seventh
- Ⓔ V Dominant seventh
- Ⓕ VI Minor seventh
- Ⓖ VII Minor seventh b5

Bigger chords are built by stacking more thirds from the parent scale. For example, the “thirteen” chord stacks 6 thirds, and if all the tones were played within one octave, **every consecutive note of the major scale would be played.** (Note: Practically speaking, the 11th degree is omitted due to the ambiguity/dissonance it produces.) So chords and scales can be seen as the same thing – The notes are just arranged differently.

It’s very important to remember that what makes a scale unique is its intervals. Each scale yields its own unique set of chord types. Other scales with other sets of intervals produce other kinds of chords. It’s up the improviser to identify the scales from the chords given.

Practically speaking, playing all the notes of a given scale at once doesn't always sound pleasing to the ear. Some notes in the scale create dissonance. For improvising, these dissonant notes are sometimes called "avoid" notes.

Strictly speaking, we can make this simple observation: THE CHORD IS THE SCALE, AND THE SCALE IS THE CHORD. That is to say, if you play all the notes of a given scale (mode) at once, that set of its notes yields the scale's signature chord. As we saw earlier, we actually build a scale's chords by selecting a note from the scale as the root and "stacking thirds" from the scale on that root. For example, if we stack 6 thirds from the mixolydian mode we will get a Thirteen chord (with a 4th degree included). Of course, from that chord you can find subsets that make smaller chords – *scale fragments*, if you will. So it can be said that the Thirteen chord is the Mixolydian Chord, and on that type of chord you would solo in Mixolydian Mode.

Practically speaking, playing all the notes of a given scale at once doesn't always sound pleasing to the ear. Some notes in the scale create dissonance. For improvising, these dissonant notes are sometimes called "avoid" notes. When soloing or ‘comping’ (accompanying), these notes are used mainly as passing tones, and it's best not to terminate a phrase with or linger on an avoid note. For example, when soloing in a straight major scale, it is best not to end phrases on the 4th degree of the scale, which is an avoid note for the major scale. To most of our ears, the sound will be unsettled and unresolved, like it wants to ‘go somewhere’ – Similar to ending a sentence with the word “and”. However, what constitutes this dissonance is largely subjective and cultural, and there is not always agreement as to what sounds acceptable.

Expanding on the idea that THE SCALE IS THE CHORD, the following signature chords are identified by their diatonic modes:

Ⓔ I: Ionian	ma7
Ⓔ II: Dorian	mi7
Ⓔ III: Phrygian	sus(b9)
Ⓔ IV: Lydian	ma7(b5)
Ⓔ V: Mixolydian	7
Ⓔ VI: Aeolian	mi7(b6)
Ⓔ VII: Locrian	mi7(b5)

From this perspective, *there is a single, unique chord from each mode.* The largest possible chord is identified by the mode itself, and there are also smaller chords – *scale fragments* - within that large chord that are unique to that scale. For example, Mixolydian's notes comprise a full thirteen chord, but

within that thirteen chord is a dominant seven chord type. Closer inspection of the component seventh chords of the major scale shows that a dominant seventh chord only occurs on the V of the major scale, so it's safe to just call it a 7 chord no matter how far you extend it: Shorthand for the thirteen chord would be simply to spell it as a dominant seventh chord, because no other mode of the major scale creates that chord from its interval set.

For example, G Mixolydian implies G7, G9, G7sus, and G13. Ionian always implies a major seventh chord and all its extensions as defined by the notes of the major scale. Dorian always implies a straight minor seventh chord and its extensions within the Dorian scale. Aeolian always implies a minor seventh with a flat 6 and all its extensions, and so on.

The same philosophy can be applied to Melodic Minor harmony and other scales.

Selecting Scales from Chords in Context

Knowing what chord is implied by a given mode/scale is important in improvising. However, a single chord doesn't tell the whole musical story: We interpret each chord in the context of the chords around it, and select a scale based on the set of chords. For example, we know a mi7 chord by itself could identify a Dorian scale, based on the idea that THE SCALE IS THE CHORD. But if that mi7 is found in the following context - Cma7, Ami7 - then the mi7 chord is actually the VI chord of the C major scale, and the Cma7 chord is the I chord. A Aeolian might be a better choice than A Dorian in this context.

...a single chord doesn't tell the whole musical story: We interpret each chord in the context of the chords around

On the other hand, if the two chords were - Cma7(b5), Ami7 - then the Cma7(b5) could be the I chord of C Lydian, making the Ami7 the VI chord of C Lydian. In this context, A Dorian is appropriate.

This is a simple example demonstrating how context affects what scales are selected for improvising. Any chord should be analyzed within the context of the surrounding chords to determine the scales to be played. But in chord progressions, the dominant seven chord is by far the most interesting, and deserves special attention.

Improvising on Dominant Seven Chords

The Dominant Seventh chord has been described as "a slippery beast" because it so readily functions as the gateway between tonalities. Equipped with some alterations, the Dominant Seventh chord gets very restless, and becomes a powerful factor in a tune's gravity and principle motivator in a tune's direction. How do we best select improvisation options for the Dominant Seventh chord and its alterations? Using ModeExploration, we can chart the course to bagging the slippery beast!

Beast #1:

Given a hypothetical tune that has a Cma7 followed by an E7 chord: Assuming Cma7 is the I chord, what do we play against the E7? The C major scale yields an Emi7 chord as the III chord, not an E7, so the E7 chord is one note outside of C major (it contains a G#). Based on THE SCALE IS THE CHORD, we might think we play an E Mixolydian scale because E7 is the chord for that scale, and that would probably sound fine.

But there may be a better choice based on the context, which is in this case the C major scale.

The Plot Thickens:

First of all, in this case we are saying the Cma7 identifies the I of the C major scale. We followed it by an E7, outside C major scale by one note, a G#. We know that the full chord actually has 7 notes (1,9,3,11,5,13,7) and the E7 has only identified 4 of those notes. We have to find the remaining notes (the 2, 4, and 6 which are called 'tensions') and because we know the rule is THE SCALE IS THE CHORD, once we discover the full chord we know EXACTLY what to play against it. So where do the missing 3 notes come from? The 'base scale', or in this case, C major. Why? *Because these notes are the ones that will provide maximum tension and subsequently the most satisfying resolution in this context (that means they will absolutely sound the best).* After all, the C major scale is what the E7 chord is deviating from, and would want to return to, you might say.

So we perform the following steps to discover the **full** E7 chord with all its tensions, and subsequently, the best scale (because as ModeExplorers know, *the chord IS the scale*):

C major Base:

C,D,E,F,G,A,B

E7 Chord:

E,G#,B,D (r,3,5,7)

Fill in the tensions diatonic to C major:

E,F,G#,A,B,C,D (r,b9,3,11,5,b13,7)
yielding an E7(b9b13) chord

The E scale is: h-wh-h-w-h-w-w, the **5th mode of A harmonic minor** (w-h-w-w-h-wh-h).

The scale is the chord, the trick is to find the full 7 chord with all its tensions, and the scale naturally follows. We found an E7(b9b13) was the chord, and therefore, the scale is the 5th mode of A harmonic minor! The tensions were derived from the C major scale, producing the most satisfying resolution.

Just for fun, let's see what the E Mixolydian scale would have produced:

C#,D,E,F#,G#,A,B

Which would have been **3 notes out** from C major, perhaps not our first choice.

Beast #2:

There are other environments in which the Dominant Seventh chord can show itself. Let's try bagging another:

Examining Bb7 to Fma7:

F major Base:	F, G, A, Bb, C, D, E
Bb7 Chord:	Bb, D, F, Ab (r,3,5,7)
Fill in the tensions diatonic to F major:	Bb, C, D, E, F, G, Ab (r,9,3,#11,5,13,7)
The Bb scale is: w-w-w-h-w-h-w, the Lydian Dominant scale , the 4th mode of F Melodic Minor (w-h-w-w-w-h).	

Beast #3:

Examining G7b5 to Abma7:

Ab major Base:	Ab, Bb, C, Db, Eb, F, G
G7b5 Chord:	G, Cb(B), Db, F (r,3,b5,7)
Fill in the tensions diatonic to Ab major:	Ab, Bb, Cb(B), Db, Eb, F, G (r,9,3,#11,5,13,7)
The G scale is: h-w-h-w-w-w-w, the Altered Dominant scale , the 7th mode of Ab melodic minor (w-h-w-w-w-h).	

Notice this: The three examples shown yielded three scales, the Fifth Mode of Harmonic Minor, the Lydian Dominant Scale, and the Altered Dominant scale – **And wouldn't you know it**, these three scales, used this way, are mainstays of jazz improvisation! *Maybe we're onto something here...*

The Beasts in Real Life

Let's take a real-world example with a familiar set of changes: "All of Me" by Simone & Marks.

| |:Cma7|Cma7|E7|E7|A7|A7|Dm7|Dm7|

|E7|E7|Am|Am|D7|D7|Dm7|G7:||

The tonal center is C. Cma7 is the I chord.

What's up with the E7? This is review -

C major base: C,D,E,F,G,A,B

E7 chord: E,G#,B,D (r,3,5,b7)

Fill in the tensions diatonic to C major: E,F,G#,A,B,C,D (r,b9,3,11,5,b13,b7) yields E7(b9b13) as the full chord

The E scale to play is: h-wh-h-w-h-w-w, the **5th mode of A harmonic minor** (w-h-w-w-h-wh-h).

And then it's followed by an A7? What now?

Let's apply the context -

The A7 is actually leading to a 'key change' from C to D - It's a V-i. So we have to figure the A7 in that new context, where it's going to - D minor:

D minor base: D,E,F,G,A,Bb,C

A7 chord: A,C#,E,G (r,3,5,b7)

Fill in the tensions diatonic to D minor: A,**Bb**,C#,**D**,E,F,G (r,b9,3,11,5,b13,b7) yields A7(b9b13) as the full chord

The A scale to play is: h-wh-h-w-h-w-w, the **5th mode of D harmonic minor** (w-h-w-w-h-wh-h).

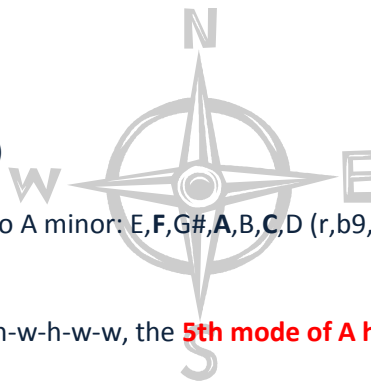
Now there's another E7. Where are we? C? D? Neither. What's the context? The E7 is leading to an Am chord this time, and it looks like a V-i again, this time the tonality is changing to A. So applying the context:

A minor base: A,B,C,D,E,F,G

E7 chord: E,G#,B,D (r,3,5,b7)

Fill in the tensions diatonic to A minor: E,**F**,G#,**A**,B,C,D (r,b9,3,11,5,b13,b7) yields E7(b9b13) as the full chord

The E scale to play is: h-wh-h-w-h-w-w, the **5th mode of A harmonic minor** (w-h-w-w-h-wh-h).



Sounds excellent. We're onto something here.

The last chords, |D7|D7|Dm7|G7|(Cma7), can probably be played simply D mixolydian on the D7 (G major scale), D dorian on the Dm7 (C major scale), and G mixolydian on the G7 (C major scale).

Beast #4:

But just for fun, there's a device called the **Tritone Substitution**. Because the 3rd and 7th of a dominant seventh chord are a tritone away from each other, those tones will also be found in a dominant seventh chord a tritone away. That's why instead of playing, for example, G7 Cma7, you can play Db7 Cma7, or G7 Db7 Cma7. Watch the 3 and 7 (and the root) as you do this.

So it would be interesting to do a tritone substitution on the last chords of "All of Me", Dm7|G7: Dm7|Db7|Cma7. 'The Method' applied to a Db7|Cma7 yields a C Double Harmonic Minor scale:

Db7 (Db,F,Ab,Cb) + C major (C,D,E,F,G,A,B) = C,Db,E,F,G,Ab,B

As a Db7 scale, that would be Db,E,F,G,Ab,B,C - We don't have a name for this, and though it sounds fine with these chords and interesting (very 'oriental'), it contains a couple of unwieldy 1 ½ step intervals, and a couple consecutive ½ step intervals. Looking at it as a G scale, we have G,Ab,B,C,Db,E,F, which is actually calls the "Oriental" scale.

Jazz players won't use the Double Harmonic scale for a triton substitution. Instead, a very common device is to flatten out those big 1 ½ step intervallic leaps into whole steps: Db,E,F,G,Ab,B,C becomes Db,Eb,F,G,Ab,Bb,C, or Db Mixolydian #11, also known as **Db Lydian Dominant**. (We saw this scale used on Beast #2 as well.)

These tritone substitutions are also referred-to as Sub V's ("sub fives").

So there you have it!

A couple last things:

Any diatonic chord may be preceded by its dom7 chord. Example: Any chord from the C major scale can be preceded by the dominant seven chord a fifth above. (G7/Cma7, A7/Dm7, B7/Em7, C7/Fma7...) These are called Secondary Dominants. Secondary Dominants always resolve to a diatonic chord. The tensions of any Secondary Dominant comes from the base scale, in this case, C major. (Be aware when tunes modulate, to the bridge, for example.)

There are also Extended Dominants - This is like a Secondary Dominant, only the chord its a dominant of is not a diatonic chord. Examples in "All of Me" would be the E7 to the A7. A7 is a II chord of C major made into a 7 chord, so it's not diatonic anymore. Therefore, the E7 before it is not a Secondary Dominant, but rather an Extended Dominant.

The tune, "All of Me", was chock full of Secondary Dominants and Extended Dominants.

In Summary

If we get nothing else, we need to get this: A chord that has notes outside of the 'key' simply alters the notes of the key, and the original 'parent' scale *with the altered notes* **is the new scale**. That's the process we've seen above.

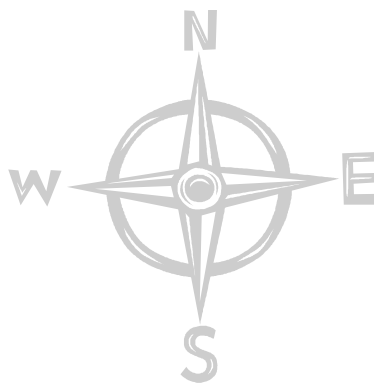
For example, if there's a non-diatonic chord, like G7b5, simply play a G7b5 mode. What's the G7b5 mode? Add the G7b5 notes (G B Db F) *and the other 3 notes from the parent scale/tonality*.

*A chord that has notes outside of the 'key' simply alters the notes of the key, and the original 'parent' scale with the altered notes **is the new scale**. That's the process we've seen above.*

If the parent tonality was D, there's a good chance the parent scale will turn out to be D melodic minor, D E F G A B C#(Db) and the net result (though no one probably thinks about it) is **G Lydian Dominant**, the 4th mode of D melodic minor. Or if the tonality is Ab, there's a good chance the scale will turn out to be the **G Altered Dominant** scale, the 7th mode of Ab melodic minor, or G Ab Bb Cb(B) Db Eb F. And so on.

We can see it as playing a G7b5 plus the other 3 notes from the parent scale/tonality - Or playing that

set of notes as the mode it actually is, but it's effectively the same because a scale is just a big chord anyway.



Building Cittern Chords

How to Construct Chords on the Mandolin: Who needs a chord encyclopedia when you know how to build your own?

Constructing jazz chords - Here's how:

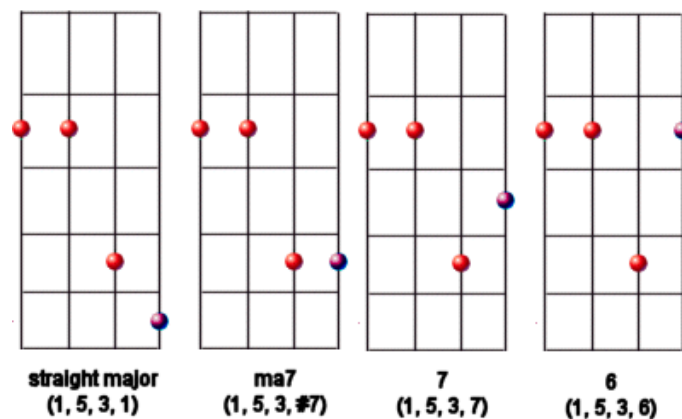
Because the Cittern is tuned in fifths, it shares chord shapes with other mandolin-family instruments. As you've seen, jazzCittern™ ModeExplorer has four different voicings of each chord, and four inversions of each voicing. How does it do that? The fifths tuning allows it to build effective mandolin voicings in the mandocello range and the octave mandolin/bouzouki range. Aside from some alterations that may be specific to longer-scale, lower range instruments, it's all the same – They are all tuned in fifths. So let's take a look at a simplified 4-course view of the chord construction technique. Once we learn it on the GDAE strings, it's simple to apply the same to the CGDA strings!

It's Easy

One consistent and easy way to construct jazz chords: Take a standard open mandolin G major chord shape, from low to high, G (open), D (open), B (fret 2), G (fret 3). That would be the 1 (root), the 5 (perfect fifth), 3 (major third), and 1 (root again).

Move that whole structure up at least one fret. That gives us a generic closed voice major chord and eliminates the open strings so we can make some easy and consistent modifications to it.

For 7 chords and ma7 chords, you modify the E string note (which is the root, the 1) down to the specified 7. What this means is, for the ma7, lower it a half step (1 fret). For the 7, lower it a whole step (2 frets). And as you might guess, lower it a step and a half (3 frets) and you get a 6 chord (a.k.a. ma6 by some).

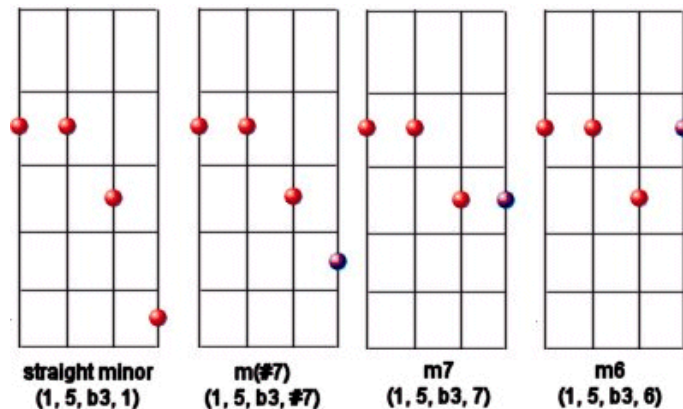


Copyright ©2002-2005 by Cleveland Software Labs, Inc. All rights reserved.

If, for example, the chord you're looking for is a Bb ma7 chord, you'd move the structure with the modified 7 up to the third fret, where there is a Bb on the 4th string, giving you a Bb ma7 chord.

Variations on the minor chord work the same way:

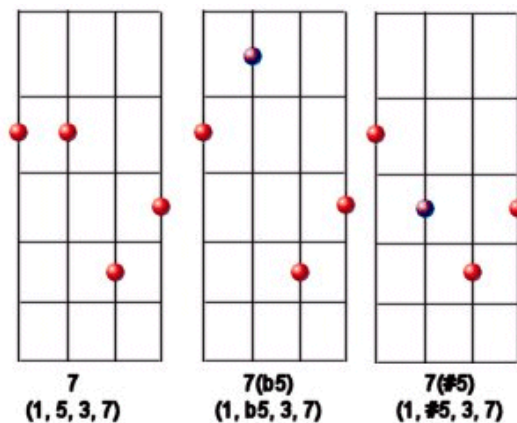
The minor chord works like the major chord, but the 3rd is dropped one fret. Like the major example above, the purple dots show the same 7ths and 6th on the first string.



Copyright ©2002-2005 by Groveland Software Labs, Inc. All rights reserved.

And you can do flat fives and sharp fives because the perfect fifth is right there handy:

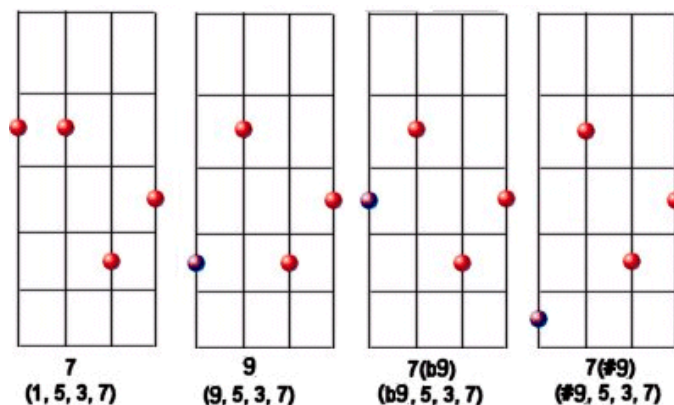
When a chord calls for a flatted five (b5) or a raised five (#5), you modify the note on the third string accordingly. (Note that when you see a #11 in a chord name, it is the same note as a b5. Also note that if you see a b13 in a chord name, it's the same note as a #5.)



Copyright ©2002-2005 by Groveland Software Labs, Inc. All rights reserved.

And the 'nines' can be found on the fourth string:

When a chord calls for a nine (9), flat nine (b9) or a sharp nine (#9), you modify the note on the fourth string accordingly. This may not sound so great with this 'nine' note on the bottom of the chord, but with inversions, you can find 3 other ways to play it. (More about this later.)



Copyright ©2002-2006 by Cleveland Software Labs, Inc. All rights reserved.

Notice that the 'nine' chords as shown here don't have a 'root' because we modified the note on the fourth string. This is common to sacrifice the root in favor of other chord tones. The root is still 'understood', and is probably being played by another instrument anyway. The name of the chord is still named after the 'implied' root, even though that note is not played.

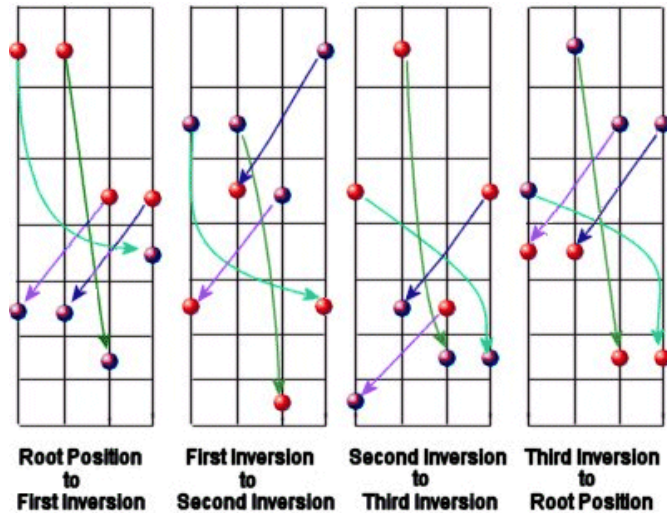
Constructing Inversions - Here's how:

Okay, continuing on - How do we get the next inversion of a chord on a fifths-tune instrument?

It turns out in fifths-tuning, you can take any voicing at all and, by applying the following steps, construct the next inversion of that chord. To get the next inversion of any chord:

Play any voicing on the fifths-tuned instrument (like G ma7: G, B, D, F#)

- ⌚ Take the first string fret and add 2 to it. Play the third string on that fret.
- ⌚ Take the second string fret and add 2 to it. Play the fourth string on that fret.
- ⌚ Take the third string fret and add 5 to it. Play the second string on that fret.
- ⌚ Take the fourth string fret and add 3 to it. Play the first string on that fret.



Inverting ma7

Copyright ©2002-2005 by Cleveland Software Labs, Inc. All rights reserved.

With a little practice, you can find the next inversion up from any chord on the fly with very little effort:

- ④ Notice that steps 1 & 2 are really the same thing applied to strings 1 and 2. This simplifies things a bit.
- ④ Notice that step 3 is just getting the third string note on the second string, only an octave higher.
- ④ Notice the fourth string note is being transferred to the first string two octaves higher.
- ④ Knowing all the inversions of chords allows you to play entire tunes in basically one position on the neck with very little physical movement, find better sounding voicings of chords for different purposes, and put together chords whose voices lead well from one chord to the next.

For example, when choosing a 7 chord voicing it is often desirable to have the 3rd and the 7th at the bottom of the chord. This is often found in the first and third inversions of the root position of the 7 chord.

This formula works on ANY chord.

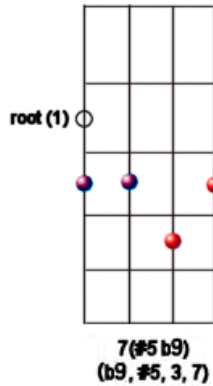
Of course, once the formula brings an inversion above the 12th fret, rotate the inversion back down to the bottom of the neck.

When working with these things, we have to

- ④ know that all the 4 notes don't need to be played at one time,
- ④ watch how the 3 and 7 move from chord to chord at all times, because that tends to be the essence of the chord, and
- ④ be aware the sound is the bottom line.

Mix and match - Build your own!

Mix and match these alterations as required by the tune you're playing - like try a C7(#5b9), a.k.a. C7(b9b13). Don't be afraid to omit the root.



Copyright ©2002-2005 by
Greveland Software Labs, Inc. All rights reserved.

Chances are really good that you won't encounter a chord that you can't build on your own this way. (Allowing for naming conventions, personal taste, and other idiosyncrasies.)

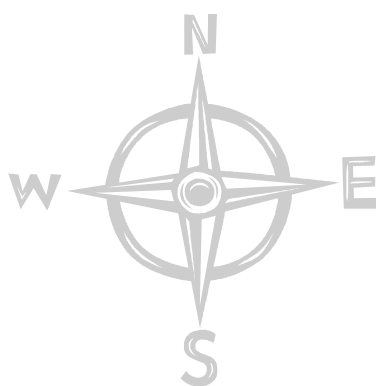
Also be on the lookout for chord shapes that, when used in various positions, yield multiple chord types. For example, the 7(#5b9) above will also serve as a m6 chord in another context, and as a 7(b5) in another. With a limited number of learned chord shapes you can cover the vast majority of musical territory.

Note:

There are a couple of naming considerations that should be highlighted here. On the piano there is a well-defined "root" position, where the root, third, fifth, and seventh are played, each a third apart. Starting on the third, the piano yields the "first inversion" of the chord, starting on the fifth is the "second inversion" and on the seventh is the "third inversion" of the chord. However, on Cittern in standard tuning, the voicing for this sort of "root" position, first, second, and third inversion does not occur. On Cittern, any voicing with the root at the bottom is not a true "root" position, but simply some voicing that happens to have the root at the bottom.

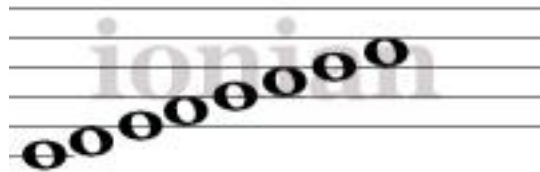
Because of this, Cittern players tend to simply refer to the voicing that yields the root at the bottom as the "root position", the voicing that yields the third at the bottom as the "first inversion", the voicing that yields the fifth at the bottom as the "second inversion", and the voicing that yields the seventh at the bottom as the "third inversion".

Furthermore, because the Cittern is limited to voicing at most four notes simultaneously, certain chords may entirely omit the root and fifth in favor of the ninth, eleventh, thirteenth, extensions and flat and sharp alterations. Because of this, you may see jazzCittern™ ModeExplorer use identical fingerings for, say, the "root position" of an Emi7 and the "root position" of a D13sus!



ScaleWatcher's FieldGuide: Modes of the Major Scale

Major Scale (Ionian Mode)



The major scale is associated with a major seventh chord. For example, in the key of C the C major seventh chord (notated Cma7) is "C E G B." These notes identify a chord built upon the tonic of the C major scale, and the C major scale is appropriate for improvising over it in the simplest case.

Building a chord on a note of a scale is accomplished by selecting the root note, moving up an interval of a third to the next note that occurs in the scale (that could be a major or minor third, depending on the scale); then moving up another interval of a third to the next note that occurs in the scale, and continue this process until redundancies occur. (For more on building chords, see [Chords](#).)

(Note also that the 'major' in a major seventh chord refers to the interval of the seventh as being major, not the interval of the third.)

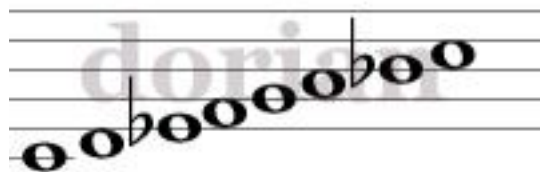
Stacking yet another third from the C major scale on top would yield a Cma9 ("C E G B D"); another third on top would yield a Cma11 ("C, E, G, B, D, F"); and another third gives a Cma13. All these chords were constructed with C as the root and entirely from the notes of the C major scale. Therefore, the C major scale is ideal to play over these chords.

We apply this principle to every degree of the scale to derive its component chords, and given a set of chords, we can 'reverse engineer' a scale to improvise over the set of chords. The basic seventh chords derived from the C major scale are Cma7, Dmi7, Emi7, Fma7, G7, Ami7, Bmi7(b5) ...and then Cma7 again.

From the chord-is-the-scale point of view, the I chord of the C major scale is actually C ma7 (2 4 6), that is, a major seventh chord with the 2, 4, and 6 (a.k.a., 9, 11, and 13). Stacking another third from C major on top ("C E G B D") yields Cma9. Stacking another third adds the 11, but because the F is dissonant it is rarely used. Adding another third gives a Cma13. But "C ma7" is shorthand for them all.

See also the Lydian Mode, where the dissonant 4th/11th is raised to resolve dissonance.

Dorian Mode



The Dorian mode is built on the second degree of the major scale. Using the C Major Scale as the "parent" scale, the D Dorian mode would be built from the notes of the C major scale starting on D: "D, E, F, G, A, B, C." Accordingly, its sequence of intervals would be w-h-w-w-w-h-w, that is, the major scale's intervals shifted to the

right by one.

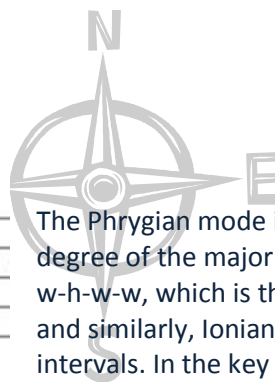
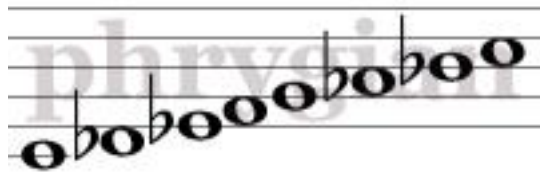
The Dorian mode is extremely popular for soloing in Blues, Rock, and Jazz. For many musicians, it is the first scale to learn, next to the Pentatonic scales.

It is identical to a natural minor scale (Aeolian) except its sixth degree is raised. Therefore, it is often used to play over a minor seventh chord. It has the additional benefit of a dominant seventh chord at its fourth and fifth degrees, creating a popular i-IV-V chord progression. Dorian is also identical to Mixolydian mode except its third is lowered. A solo mixing Dorian and Mixolydian modes essentially alternates the third from minor to major, effectively playing the Blues.

One can add more thirds to the minor seventh chord to obtain extensions. Using D Dorian as an example, stacking more thirds yields Dm9, Dm11 and Dm13. All these chords would readily suggest D Dorian mode for soloing.

From the chord-is-the-scale point of view, the I chord of the D Dorian scale is actually Dmi7 (2 4 6), that is, a minor seventh chord with the 2, 4, and 6 (a.k.a., 9, 11, and 13) - Called the "dorian chord", shorthand Dmi7. Stacking 3rds on the minor seventh chord obtain Dm9, Dm11 and Dm13, still implying Dorian mode.

Phrygian Mode



The Phrygian mode is the mode based on the third degree of the major scale. Its interval sequence is h-w-w-h-w-w, which is the Dorian mode shifted right by one, and similarly, Ionian (major) shifted to the right by two intervals. In the key of C (no sharps or flats), Phrygian starts on E: "E, F, G, A, B, C, D".

This scale's intervals are similar to the natural minor scale, except that the second step in the Phrygian mode is lowered by a half step. The Phrygian mode can be used with a minor seventh chord; but often you will hear it used over its first three component chords: A minor seventh followed by an major seventh a half step above, followed by a dominant seventh chord a step and a half above. Phrygian mode produces a very Spanish sound.

From the chord-is-the-scale point of view, the I chord of the E Phrygian scale is Esus(b9). An E mi7 with a b2, 4, and b6 chord can be found here as well, but the mi7 name has been applied to the dorian chord. (see Dorian mode).

Lydian Mode



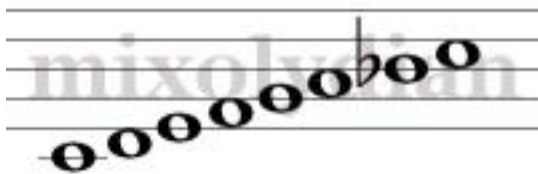
The Lydian mode is based on the fourth degree of the major scale, and its interval sequence is w-w-w-h-w-w-h, which is the Phrygian mode shifted right by one, and similarly, Ionian (major) shifted to the right by three intervals. In the key of C (no sharps or flats), Lydian starts on F: "F, G, A, B, C, D, E".

Similar to the major scale only with a raised fourth degree, this scale has been said by some to be a strong alternative to the major scale over a major seventh chord. This is because in the major scale, the fourth is an 'avoid note,' bringing ambiguity to the sound, where Lydian provides a raised fourth degree and no ambiguity, and hence no note to avoid. When a major seventh chord is played, you can choose between the major and Lydian scales.

Note: George Russell built an entire system of improvisation based on the strength of the Lydian mode, where a ma7(#11) chord is the chord built on the first degree of the scale - The Lydian Chromatic Concept (<http://www.georgerussell.com/>).

From the chord-is-the-scale point of view, the I chord of the F Lydian scale is F ma7(#4). (i.e., has 2, #4, and 6)

Mixolydian Mode



The Mixolydian mode is based on the fifth degree of the major scale, and its interval sequence is w-w-h-w-w-h-w which is the Lydian mode shifted right by one, and similarly, Ionian (major) shifted to the right by four intervals. In the key of C (no sharps or flats), Mixolydian starts on G: "G, A, B, C, D, E, F".

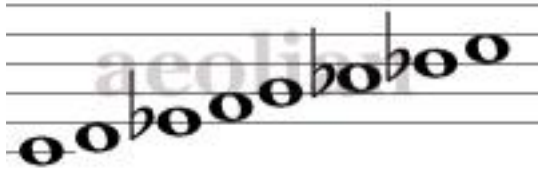
The seventh degree is lowered a half step as compared to the major scale. This creates an interval of the dominant seventh, so it is great to play this mode over the ever-present dominant seventh chord, just as one would choose to play a major scale over a major seventh chord.

It has the additional benefit of a dominant seventh chord at its fourth degree and a minor seventh chord at its fifth degree, creating a popular I-IV-v chord progression. Dorian is also identical to Mixolydian mode except its third is lowered. A solo mixing Dorian and Mixolydian modes essentially alternates the third from minor to major, effectively playing the Blues.

As with the major scale, the fourth degree is an avoid note except when a 'suspended' version of the seventh chord is used or an eleventh chord.

From the chord-is-the-scale point of view, any chord simply noted as a 7 chord (dom7) can be played as a 9 chord, 11 chord, or 13 chord with no alterations (i.e., no #5, b5, #9, b9).

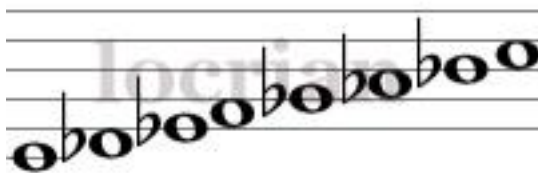
Minor Scale (Aeolian Mode)



The Aeolian Mode is based on the sixth degree of the major scale, and its interval sequence is w-h-w-w-h-w-w. It is also known as natural minor, and it can be played over a minor seventh chord.

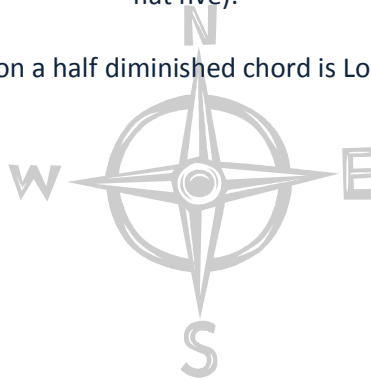
From the chord-is-the-scale point of view, the I chord of the A Aeolian scale is actually A mi7 with a 2, 4, and b6, a.k.a., 9, 11, and b13. Because the mi7 chord implies a natural 2, 4, and 6, the Aeolian chord is A mi7(b6).

Locrian Mode



The Locrian mode is based on the seventh degree of the major scale, and its interval sequence is h-w-w-h-w-w-w. In the key of C (no sharps or flats), Locrian starts on B: "B, C, D, E, F, G, A". The seventh chord built on this scale is a half diminished seventh chord, or m7b5 (minor seven flat five).

A good substitute for Locrian mode on a half diminished chord is Locrian #2, from Melodic Minor harmony. (See Locrian #2)



Synthetic Modes

What are Synthetic Modes?

The ModeExplorer's definition of a Synthetic Scale is "Any Scale not derived from the major scale." Synthetic Modes are the modes derived from a Synthetic Scale. Using this definition, some of the Synthetic Modes are those derived from:

- Ⓢ Ascending Melodic Minor
- Ⓢ Harmonic Minor, Harmonic Major
- Ⓢ Hungarian Minor, Hungarian Major
- Ⓢ Neapolitan Minor
- Ⓢ Neapolitan Major
- Ⓢ Pentatonic Minor
- Ⓢ Pentatonic Major

There are, of course, more.

The Blues and Bebop scales are considered Synthetic Scales, because they are invented and not part of classical theory. A large number of Synthetic Scales (thousands of combinations of the 12 tones of the chromatic scale) can be constructed using just intervals of minor, major, and augmented seconds. Using the **jazzCittern™ ModeExplorer**, you can experiment and save your own scales and component chords, share them, and test them out.

Melodic Minor Harmony

As we saw before, Aeolian mode is also called the natural minor or pure minor. There are two other minor scales derived from natural minor to provide more color, tension, and movement.

The natural minor scale presents challenges: Its fifth degree produces a minor seventh chord, and we would like to hear a dominant seventh chord there to do all the wonderful things a dominant seventh at the fifth degree of the scale does for movement and strong resolution; its first degree produces a relatively uninteresting minor seventh chord also. By raising the seventh degree of the natural minor scale we get the Harmonic Minor Scale, which gives us a dominant seventh chord at the fifth degree, and a minor raised seventh and a minor sixth chord at the root. The Melodic Minor Scale provides that, too, plus it eliminates the augmented second interval between the sixth and seventh degrees. Both Melodic and Harmonic minors are used heavily in jazz.

Often players will be more familiar with the Dorian mode than with natural minor (Aeolian mode) due to the heavy use of Dorian in Rock, Blues and Jazz. Melodic Minor is a very close relative of Dorian mode: It is Dorian mode with a raised seventh degree, providing that strong 'leading tone' at the seventh degree. In this regard it can be said that Harmonic Minor is to Aeolian as Melodic Minor is to Dorian.

Just as with the modes of the major scale, there are component chords built from each degree of the Melodic Minor scale by 'stacking thirds'. The seventh chords derived from the Melodic Minor scale are the following:

- mi(ma7)
- mi7
- ma7(#5)
- 7
- 7
- mi7(b5)
- mi7(b5)

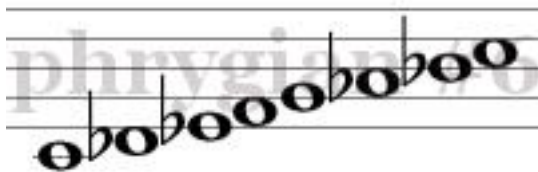
Each degree of the Melodic Minor scale also yields a mode, that is, an inversion of the scale. Each degree of the scale yields a specific chord built by stacking thirds on the degree of the scale. And as we have seen for all modes, the mode (inversion) of the Melodic Minor scale can be played over the chord built on that degree of the scale. For example, the fourth degree of A Melodic Minor yields a D7 chord and a D Lydian Dominant scale. This means that over a D7 the D Lydian Dominant scale can be played.

However, knowing all the chords and modes built on each degree of a scale may not be particularly helpful or practical in improvisation on-the-fly. So practically speaking, given any combination of the component chords created from a scale, one only needs to know and play the parent scale from which the chords were built.

For example, if presented with Cma7(#5), D7, E7, Ami(ma7), one would not have to go through the exercise of playing (and thinking) C Lydian Augmented, D Lydian Dominant, E 'Fifth Mode', and A Melodic Minor. This would be unwieldy. A quick analysis of the chords shows that they are all derived from A Melodic Minor, and to improvise on these chords (in the simplest case), only A Melodic Minor notes are played over these particular chords, so, all other issues aside, the player would need to know one scale, not four.

Note: Because Cittern is very "pattern" and "shape" oriented, often Citternists mistake a particular position or pattern on the neck of a Cittern for a scale. A scale or mode is not defined in any way by a position on the neck of the Cittern or by a single positional pattern. It is characterized by its intervals, and spans the entire neck of the Cittern.

Phrygian #6



Lacking a universally accepted name, the second mode of the Melodic Minor Scale is characterized by the intervals set, h-w-w-w-w-h-w. As a mode of 'A' Melodic Minor, the notes would be "B, C, D, E, F#, G#, A". As the name implies, this is the same as Phrygian mode with a raised sixth degree.

Use this mode over a sus(b9) chord as a substitute for Phrygian mode.

Because it's the 2nd mode of Melodic Minor, and there are no 'avoid notes', you can simply play Melodic Minor a seventh up from the root of the sus(b9) chord.

Overtone (Lydian Augmented)

The Lydian Augmented scale is the third mode of the Melodic Minor Scale, identified by the interval set w-w-w-w-h-w-h.

The name 'Lydian' implies a raised 4th degree, and 'augmented' implies a raised 5th degree. Relative to 'A'

Melodic Minor, Lydian augmented would start on C: "C, D, E, F#, G#, A, B". When a ma7(#5) is played, the Lydian Augmented scale is appropriate. (The ma7(#5) chord can be thought of as a major triad with the b6 in the bottom.)

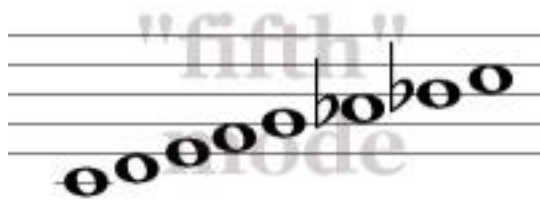
Because it's the 3rd mode of Melodic Minor, and there are no 'avoid notes', you can simply play Melodic Minor a sixth up from the root of the ma7(#5) chord.

Lydian Dominant

The fourth mode of the Melodic Minor scale, with the interval set w-w-w-h-w-h-w, is often called the Lydian Dominant, resembling the major scale with a raised fourth (like Lydian mode) and a lowered seventh (like Mixolydian mode).

From an A Melodic Minor perspective, Lydian Dominant starts on D: "D, E, F#, G#, A, B, C". As we saw earlier, Mixolydian mode is used with a dominant seventh chord, and the fourth step was considered an 'avoid' note. The Lydian Dominant scale raises the fourth, eliminating the 'avoid' note, and works well on a dominant seven chord.

The signature chord of the Lydian Dominant scale is the 7(#11) chord. Because it's the 4th mode of Melodic Minor, and there are no 'avoid notes', you can simply play Melodic Minor a fifth up from the root of the 7(#11) chord.

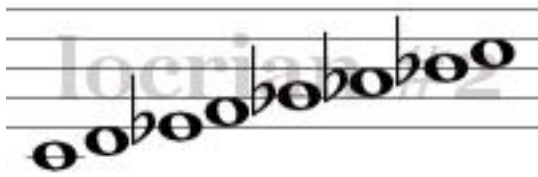
Fifth Mode

There is no common name for this mode, the fifth mode of the Melodic Minor scale: w-w-h-w-h-w-w. This can be used over the V chord in a minor key ii-V-i progression.

The 5th mode of Melodic Minor is rarely used. Its signature chord would be a 7(b13). Because it's the 5th

mode of Melodic Minor, and there are no 'avoid notes', you can simply play Melodic Minor a fourth up from the root of the 7(b13) chord. When two dominant 7 chords occur a whole step apart, Fifth Mode of Melodic Minor may be appropriate on the root of the upper dominant 7 chord.

Locrian #2



The sixth mode of the Melodic Minor scale, with the interval set w-h-w-h-w-w-w, is often called Locrian #2 (also "half diminished scale"), identical to the Locrian mode with a raised second step. F# Locrian #2 scale is based on Melodic Minor scale and consists of "F#, G#, A, B, C, D, E".

Play Locrian #2 over a mi7(b5) chord as a substitute for Locrian mode. Because it's the 6th mode of Melodic Minor, and there are no 'avoid notes', you can simply play Melodic Minor a 3rd up from the root of the mi7(b5) chord.

Altered Scale



The seventh mode of the Melodic Minor scale is also called the Altered scale, diminished whole tone scale, or Super Locrian; and is a uniquely powerful scale in improvising. It combines elements of the diminished and whole tone scales; it has a b9, #9, #11, and b13 - Altered in every possible way.

It so happens that this scale contains what can be the root, third, and seventh of a dominant seventh chord, as well as the flat five and sharp five, and the flat nine and sharp nine. What this means is the scale is well suited for dominant seventh altered chords. Think of it as a Melodic Minor scale played a half step above a dominant seventh chord, for example, a G#7(#5#9) chord with an A Melodic Minor played over it.

Given an Alt chord, play the Altered scale over it. Because it's the 7th mode of Melodic Minor, and there are no 'avoid notes', you can simply play Melodic Minor a half step up from the root of the Alt chord.

Pentatonic Scales

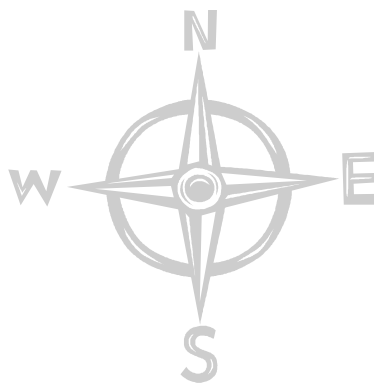


The two basic Pentatonic scales are the Major Pentatonic scale and the Minor Pentatonic scale. These are scales with intervals limited to whole steps and minor thirds. A Major Pentatonic scale in C contains "C, D, E, G, A", and a C Minor Pentatonic scale contains "C, Eb, F, G, Bb".

Because these scales are a limited subset of typical seven tone scales, they can be used effectively in many contexts, and often provide a one-size-fits-all, lowest-common-denominator solution for the improviser when chord progressions become demanding.

Repositioning the major or minor Pentatonic is powerful. For example, The 7alt and m7(b5) occur on the 7th degree of melodic minor: Play melodic minor a half

step up from the root of the chord. The minor pentatonic scale is a subset of melodic minor starting on the 2nd degree. (2, 4, 5, 6, 1) So for a 7alt or m7(b5) play a minor pentatonic starting a step and a half up from the root of the chord.

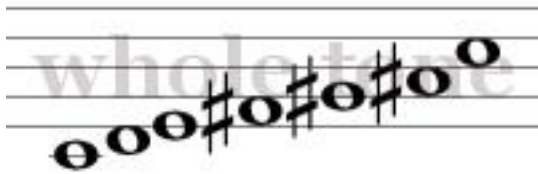


Symmetric Scales

What are Symmetric Scales?

A mode of given scale producing the same type of scale as the original scale is said to be symmetric.

Whole Tone Scale

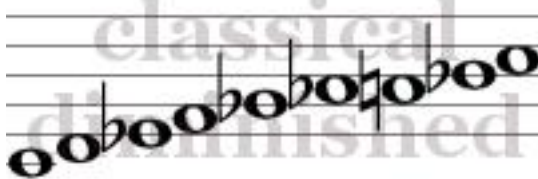


The Whole Tone Scale has only six notes, each a whole step apart. There are only two Whole Tone Scales.

The first, third and fifth degrees make up an augmented triad, and that makes the Whole Tone Scale an easy, economical way to play over augmented chords and

chords containing strong tritones.

The Diminished Scales



There are two diminished scales, the Half-Whole-Half (or Half-Whole) and Whole-Half-Whole (or Whole-Half), used to play diminished seventh chords and a variety of altered dominant chords.



ChordWatcher's FieldGuide

Ever wonder how chord naming works? Ever wonder exactly what notes and intervals define a chord? The ModeExplorers have spelled out nearly every useful chord imaginable in this FieldGuide to assist you in identifying just about every genus and species you'll encounter in the wild. (There are 57 here!)

There's no mystery to chord naming, and if done using this tried-and-true convention, there's no ambiguity, confusion or miscommunication. It can all be expressed in four simple rules:

Naming Rule 1

Any degree named above 7 implies the existence of a 7, like 9, 11, 13. Any name below a 7 implies there is no 7, like 2, 4, and 6. The same rule applies to b2, #2, b9 and #9. The b2 and #2 mean there's no 7. The b9 and #9 means there is a 7.

Naming Rule 2

If the 5 is not there in the chord, you can have a b5 or a #5. Otherwise, you have to use the alternative, that is, #4 or b6.

Naming Rule 3

If there is a 7 in the chord, then any #4 becomes a #11 and any b6 becomes a b13.

Naming Rule 4

All diatonic degrees of the chord below the highest degree specified are implied to be in the chord. That is to say, if the chord specifies a 13, the 11, 9, and 7 are implied. If the 11 is specified, the 9 and 7 are implied. If the 9 is specified, the 7 is implied. In practice, the 11 may be omitted due to dissonance. (Of course, partial voicings may omit any voice as needed.)

Note: The 7's cited above can be either b7's or 7's. Same thing applies to both.

Note: Just because you're not playing a note in a **chord**, doesn't mean it's not implied - The scale context, function, surrounding chords, and other instruments will imply notes even if omitted.

Here are other important concepts to be aware of:

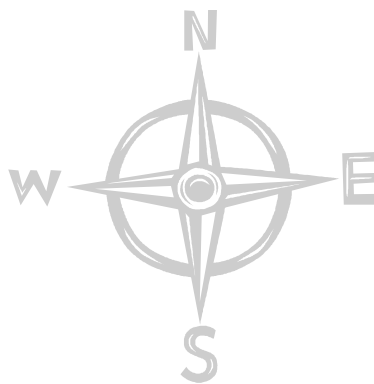
- ☞ The function must be clear above all else, and the form is left to the improviser. Chord symbols should NOT prescribe form - They should designate function only.
- ☞ M7, MA7, ma7, maj7, or a triangle, all represent a 4-note major triad with a major 7 on top. *The word "major" in the name refers not to the 3rd, but to the interval of the 7th.* The major third is communicated because the chord is not specified as minor (m, mi, MI, -).
- ☞ Absence of a minor designation defaults to major.
- ☞ The 7 alone always designates the b7. An "ma" refers to the major seventh interval, as opposed to a lone 7, which refers to the b7 interval.
- ☞ A "mi" always refers to the third. No designation at all will default to major.

So:

- ☞ If you see a C alone, it's a major triad.
- ☞ If you see a Cmi it's a minor triad.

- ☞ If you see C7, it's a major triad with a b7.
- ☞ If you see a Cma7, it's a major triad with a major 7.
- ☞ If you see a Cmi7 it's a minor triad with a b7.
- ☞ If you see a Cmi(ma7) it's a minor triad with a major 7.

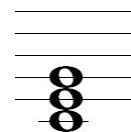
That's all there is to it. Now, get out your field glasses, let's do some ChordWatching!



Major

ma

The major chord consists of a major third interval with a minor third interval above: the root, major third and fifth.

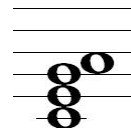


Major Sixth

6

The sixth chord is a major chord with the sixth added. There is no seventh.

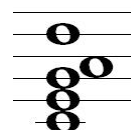
This is often used in place of dom7 or ma7 chords to produce ambiguity, opening opportunities for the player to interpret the 7th degree and select mixolydian (7), lydian (ma7(#11)), major (ma7) scales, and others.



Six Nine

69

A 'six nine' chord is a major chord with an added major sixth interval and an added ninth, but the seventh is omitted.

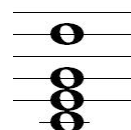


Add Nine (AKA "Two Chord")

(add 9)

The 'add nine' chord is a major chord with a ninth degree added, no seventh.

However, it is sometimes called a 'two' chord as well. There is some agreement that a true 'two' chord is an 'add nine' chord with the 3rd omitted as well.

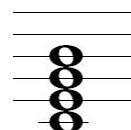


Major Seventh

ma7

The major seventh chord consists of the root, major third, and a perfect fifth, and a major seventh.

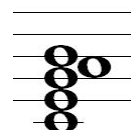
The major seventh chord is found at the first and fourth degrees of the major (Ionian) scale, and the third and sixth degrees of the minor (Aeolian) scale. Ionian mode is a good choice for improvising on a major seventh chord. However, much attention has been given to Lydian mode over a major seventh chord, implying the ma7(#11) chord (major seven raised eleven, major seven sharp eleven).



Major Seven Add Thirteenth

ma7(add 13)

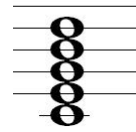
This chord contains both a major seventh and a sixth interval, no ninth.



Major Nine

ma9

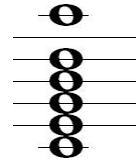
A major seventh chord with the interval of a ninth added.

**Major Thirteenth**

ma13

Like the major seven add thirteen, with the ninth present.

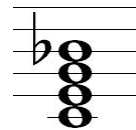
This is really all the notes of the major scale with the dissonant 11th degree omitted. The chord illustrates some of the reasoning behind the Lydian Chromatic Concept: If you play all the white keys on the piano within an octave from C to C, the ear tells us that the tonic is NOT C, but that the tonic is F. To remove this dissonance, the F is removed. See also the ma13(#11) chord. (Major Thirteen Augmented Eleven)

**Seventh**

7

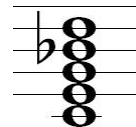
The dominant seventh chord is a pivotal chord of most modern music. It consists of the root, major third, perfect fifth, and dominant seventh.

The dominant seventh chord is found at the fifth degree of the major (Ionian) scale, and the seventh degree of the minor (Aeolian) scale. Mixolydian mode is a good choice for improvising on a dominant seventh chord, as well as blues scales (with a minor and major third). Altering the b9, #9, #11 or b13 of the dominant seventh chord yields wonderful passing chords; lowering any tone of Diminished Seventh chord a half step yields a Dominant Seventh chord.

**Ninth**

9

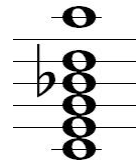
The ninth chord is a major chord with a ninth interval added, but unlike the 'two' chord, it has a dominant seventh interval.

**Thirteenth**

13

The thirteen chord is a sixth chord with minimally a dominant seventh interval added, and most often the ninth is also included.

The eleventh is dissonant and rarely used, or is raised. See also the 13(#11) chord. (Thirteen Augmented Eleven)

**Minor**

mi

The minor chord consists of the root, minor third, and a perfect fifth.

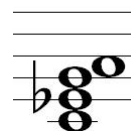
It is found at the first and fifth degrees of the minor (Aeolian) scale and the second and sixth degrees of the major (Ionian) scale.

**Minor Sixth**

mi6

A minor chord with the interval of a sixth added.

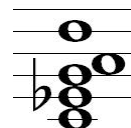
This chord occurs on the 2nd degree of the major scale (dorian), but is more often associated with the 1st and 2nd degrees of the Melodic Minor scale, or the 4th and 6th degrees of Harmonic Minor.



Minor Six Nine

mi69

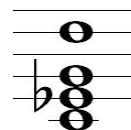
A minor sixth chord with the interval of a ninth added.



Minor Add Nine

mi(add 9)

A minor chord with the ninth (or major second) added, no seventh.



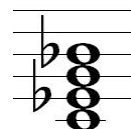
Minor Seventh

mi7

The minor seventh chord consists of the root, minor third, and a perfect fifth, and a dominant seventh.

The minor seventh chord is found at the second, third, and sixth degrees of the major (Ionian) scale, and the first, fourth and fifth degrees of the minor (Aeolian) scale.

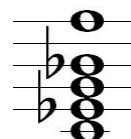
Dorian mode is a good choice for improvising on a minor seventh chord.



Minor Seventh Add Eleven

mi7(add 11)

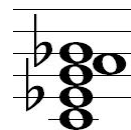
A minor seventh chord with the eleventh (or fourth) added.



Minor Seventh Add Thirteen

mi7(add 13)

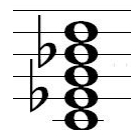
A minor seventh chord with the thirteenth (or sixth) added.



Minor Nine

mi9

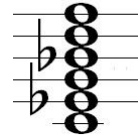
A minor seventh chord with the interval of a ninth (or major second) added.



Minor Eleven

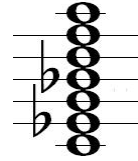
mi11

A minor seventh chord with the interval of a ninth (or major second) and eleventh (or fourth) added.

**Minor Thirteen**

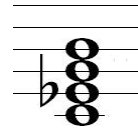
mi13

A minor seventh chord with the interval of a ninth (or major second) and thirteenth (or sixth) added.

**Minor Raised Seven**

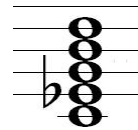
mi(ma7)

This is a minor chord with a major seventh interval added. It occurs at the 1st degree of Harmonic Minor and Melodic Minor, and therefore is a 'signature sound' for those scales. It is also found at the 6th degree of Harmonic Minor.

**Minor Nine Raised Seven**

mi9(ma7)

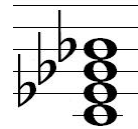
This is a minor nine chord with a major seventh interval added.

**Minor Seven Flat Five**

mi7(b5)

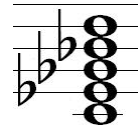
The minor seven flat five chord is also known as the "half diminished" chord. It consists of the root, minor third, and a flattened fifth, and a dominant seventh.

The minor seven flat five chord is found at the seventh degree of the major (Ionian) scale, and the second degree of the minor (Aeolian) scale. The minor seven flat five chord is built from the root of Locrian mode. By the same token, this chord is powerful as the ii of a ii-vi-I or ii-vi-I passage.

**Minor Nine Flat Five**

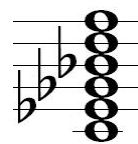
mi9(b5)

This is a minor nine chord with the five lowered a half step.

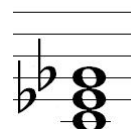
**Minor Eleven Flat Five**

mi11(b5)

This is a minor eleven chord with the five lowered a half step.

**Diminished**

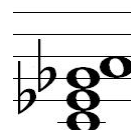
dim. The diminished chord is built entirely of minor thirds: It consists of the root, minor third, and a flatted fifth. It is often extended as a diminished seventh chord, which adds another minor third at the top, yielding an interval of a sixth from the root.



Diminished Seventh

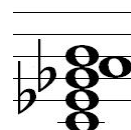
o7 The Diminished Seventh chord consists of three minor third intervals, yielding the root, minor third, flat five, and sixth.

This chord is useful for transitioning between other chords. It is particularly interesting because lowering any tone of Diminished Seventh chord a half step yields a Dominant Seventh chord.



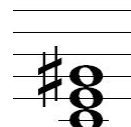
Diminished Seventh Add Raised Seven

o7(add ma7) The diminished seventh chord with an added major seven interval.



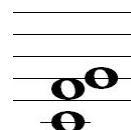
Augmented

+ This chord consists of two major third intervals.



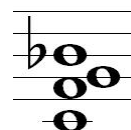
Suspended

sus The sus chord consists of the root, a fourth (no third), and a fifth.



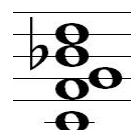
Seven Suspended

7sus The same as a seventh chord with the third omitted and the fourth added.



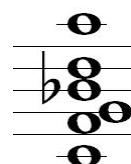
Nine Suspended

9sus The same as a nine chord with the third omitted and the fourth added. AKA an eleventh chord.



Thirteen Suspended

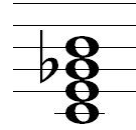
13sus The same as a thirteen chord with the third omitted and the fourth added.



Major Seven Flat Five

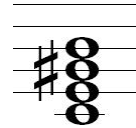
ma7(b5)

Closely related to the ma7(#11) chord, only omitting the perfect fifth.

**Major Seven Sharp Five**

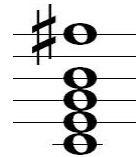
ma7(#5)

Notably a product of Harmonic Minor harmony and Melodic Minor harmony. In Harmonic Minor and Melodic Minor, occurs on the 3rd degree of the scales.

**Major Seven Augmented Eleven**

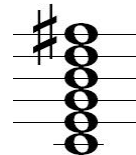
ma7(#11)

Closely related to the ma7(b5) chord, only adding the perfect fifth.

**Major Nine Augmented Eleven**

ma9(#11)

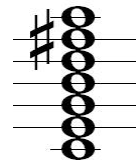
Occurs on the 4th degree of the Major scale, making it a "Lydian" chord.

**Major Thirteen Augmented Eleven**

ma13(#11)

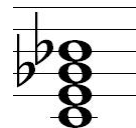
Like the Major Thirteen chord (ma13) with the 11th degree added and raised.

This is really all the notes of the major scale with the dissonant 11th degree raised. The chord illustrates some of the reasoning behind the Lydian Chromatic Concept: If you play all the white keys on the piano simultaneously within an octave from C to C, the ear tells us that the tonic is NOT C, but that the tonic is F. To remove this dissonance and strengthen the C as the tonic, the F is sharpened, yielding Lydian mode. See also the ma13 chord. (Major Thirteen)

**Seven Flat Five**

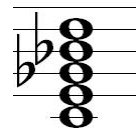
7(b5)

Participates in Melodic Minor harmony, occurring at the 5th and 7th degrees of the Melodic Minor scale.

**Nine Flat Five**

9(b5)

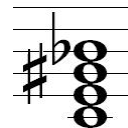
Participates in Melodic Minor harmony, occurring at the 5th degree of the Melodic Minor scale.



Seven Sharp Five

7(#5)

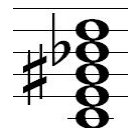
Participates in Melodic Minor harmony and Harmonic Minor harmony. Occurs at the 5th degree of the Harmonic Minor scale. Occurs at the 5th and 7th degrees of the Melodic Minor scale. Occurs at the



Nine Sharp Five

9(#5)

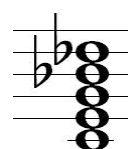
Participates in Melodic Minor harmony, occurring at the 5th degree of the Melodic Minor scale.



Seven Flat Nine

7(b9)

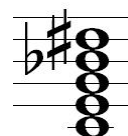
Participates in Harmonic Minor harmony, occurring at the 5th degree of the Harmonic Minor scale.



Seven Sharp Nine

7(#9)

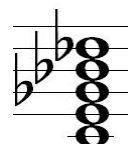
Occurs in some Symmetric scales and some more exotic scales such as Harmonic Major, Hungarian Minor, and Hungarian Major.



Seven Flat Five Flat Nine

7(b5b9)

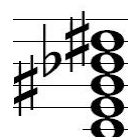
Participates in Melodic Minor harmony. Occurs at the 7th degree of the Melodic Minor scale.



Seven Sharp Five Sharp Nine

7(#5#9)

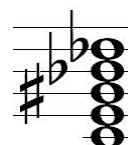
Participates in Melodic Minor harmony. Occurs at the 7th degree of the Melodic Minor scale.



Seven Sharp Five Flat Nine

7(#5b9)

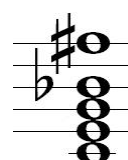
Participates in Melodic Minor harmony. Occurs at the 7th degree of the Melodic Minor scale.



Seven Augmented Eleven

7(#11)

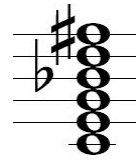
Participates in Melodic Minor harmony. Occurs at the 4th degree of the Melodic Minor scale.



Nine Augmented Eleven

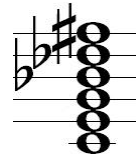
9(#11)

Participates in Melodic Minor harmony. Occurs at the 4th degree of the Melodic Minor scale.

**Seven Flat Nine Augmented Eleven**

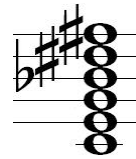
7(b9#11)

Occurs in some Symmetric scales.

**Seven Sharp Nine Augmented Eleven**

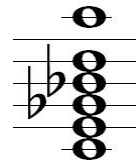
7(#9#11)

Occurs in some Symmetric scales and various exotics.

**Thirteen Flat Five**

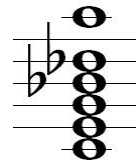
13(b5)

Participates in Melodic Minor harmony. Occurs at the 4th degree of the Melodic Minor scale.

**Thirteen Flat Nine**

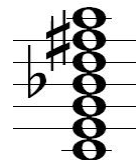
13(b9)

Occurs in the Symmetric scale (half-whole-half) and the Diminished scale (whole-half-whole).

**Thirteen Augmented Eleven**

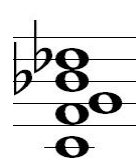
13(#11)

Participates in Melodic Minor harmony. Occurs at the 4th degree of the Melodic Minor scale.

**Seven Suspended Flat Nine**

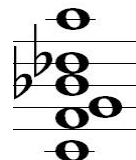
7sus(b9)

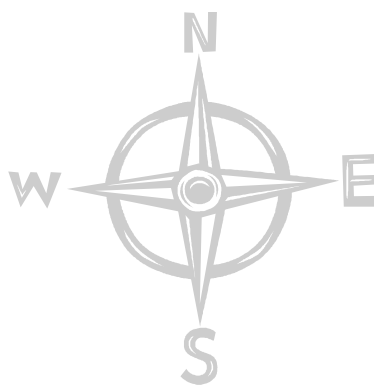
Found in Diatonic, Harmonic Minor and Melodic Minor harmony. It is found on the 3rd degree of the Major Scale. It occurs on the 5th degree of the Harmonic Minor scale, and the 2nd degree of the Melodic Minor scale.

**Thirteen Suspended Flat Nine**

13sus(b9)

Participates in Melodic Minor harmony. Occurs at the 2nd degree of the Melodic Minor scale.





Tech Notes

Some Technical Background on the ModeExplorers

HTML5 and the State of Browsers

The term “HTML5” refers to the up-and-coming specifications for rich and powerful browsing experiences on the web. The spec has been adopted at least in part by many browser manufacturers, and offers audio and graphic facilities not found in old-school HTML. This simply makes it easier for web developers to do cool things.

The *jazzCittern*™ ModeExplorer is built using HTML5, which at this writing has gained a lot of support by browser developers. But it’s still the Wild West. From browser to browser, and even the same browser on different operating systems, produces desired results with varying degrees of success.

Platform and Software Requirements

Having said that, we continually test the *jazzCittern* ModeExplorer on all platforms and find it to behave as desired.

To run the client for *jazzCittern*™ ModeExplorer, you must have installed on your computer:

- A browser and OS that supports HTML5

Thank you!

We hope you enjoy using the *jazzCittern*™ ModeExplorer. To contact us:

Other Citternalia and Support

For the latest information on the ModeExplorer, visit our website at: www.jazzcittern.com.